

Rocky Flats
National Wildlife Refuge
Final
Comprehensive Conservation Plan

April 2005

Prepared for:

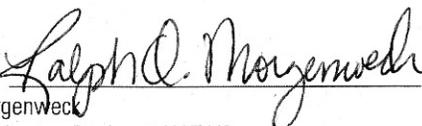
U.S Fish & Wildlife Service
Rocky Flats National Wildlife Refuge
Rocky Mountain Arsenal – Building 121
Commerce City, CO 80022

Prepared by:

ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218

And:

Shapins Associates
1818 16th Street
Boulder, CO 80302

Approved: 
Ralph Morgenweck
Regional Director, Region 6, USFWS

4/19/05
Date

**ROCKY FLATS NATIONAL WILDLIFE REFUGE
COMPREHENSIVE CONSERVATION PLAN APPROVAL
U.S. FISH AND WILDLIFE SERVICE, REGION 6**

SUBMITTED BY:

Laurie Shannon

Laurie Shannon
Planning Team Leader
Rocky Flats National Wildlife Refuge

03/28/05
Date

Dean Rundle

Dean Rundle
Refuge Manager
Rocky Flats National Wildlife Refuge

28 MARCH 05
Date

CONCUR:

David Weisman

David Weisman
Refuge Program Supervisor

4/15/05
Date

Ron Shupe

Ron Shupe
Acting Regional Chief
National Wildlife Refuge System

4/15/05
Date

Contents

Summary	S1
The Rocky Flats National Wildlife Refuge	S3
Refuge Significance	S4
Refuge Purpose	S4
Vision	S5
Goals	S5
PUBLIC INVOLVEMENT	S6
THE REFUGE'S RESOURCES	S6
ACTIVITIES OUTSIDE THE SCOPE OF THIS EIS	S6
OVERVIEW OF THE CCP	S7
OBJECTIVES AND STRATEGIES	S8
Wildlife and Habitat Management	S8
Public Use, Education and Interpretation	S8
Safety	S8
Open and Effective Communication	S8
Working with Others	S8
Refuge Operations	S8
ENVIRONMENTAL CONSEQUENCES	S9
ROCKY FLATS ILLUSTRATIVE PLAN	S10
Chapter 1	1
1.1. LEGAL AND POLICY GUIDANCE	4
U.S. Fish & Wildlife Service	5
National Wildlife Refuge System Mission and Goals	5
Compatibility Policy	5
1.2. REFUGE SIGNIFICANCE, PURPOSE, VISION AND GOALS	6
Significance	6
Purpose and Direction	6
Vision	7
Goals	7
1.3. SELECTION AND IMPLEMENTATION OF THE CCP	7
1.4. ADJACENT LAND PROTECTION	7
1.5. ACTIVITIES OUTSIDE THE SCOPE OF THE CCP AND EIS	8
1.6. FUTURE PLANNING	11
1.7. REFERENCES	12
Chapter 2	13
2.1. OVERVIEW OF THE PLANNING PROCESS	15
2.2. PUBLIC INVOLVEMENT	16
Project Scoping	17
Issues	20
Chapter 3	23
3.1. INTRODUCTION	25
3.2. GEOLOGY AND SOILS	25
Surficial and Bedrock Geology	25
Geologic Hazards	25
Mineral Resources	25
Soils	27
Soil Contamination	27
3.3. WATER RESOURCES	27
Surface Water	27
Ground Water	30
Future Hydrological Conditions	32
3.4. VEGETATION Communities	32
Xeric Tallgrass Grassland Management Zone	32
Wetland and Riparian Corridors Management Zone	34
Mixed Prairie Grasslands Management Zone	36
Noxious Weeds	37
Rare Plants	37
Fire History	39
3.5. WILDLIFE Resources	39
Mammals	39

Birds	42
Reptiles and Amphibians	45
Aquatic Species	45
Wildlife Species of Special Concern	46
Wildlife Corridors	47
Potential Contamination Issues	47
3.6. FEDERAL THREATENED and ENDANGERED SPECIES	48
Preble’s Meadow Jumping Mouse	48
Bald Eagle	48
Plant Species	48
3.7. CULTURAL RESOURCES	49
Prehistoric Resources	49
Historic Resources	49
3.8. INFRASTRUCTURE, EASEMENTS, AND UTILITIES	51
Transportation	51
Utilities	53
Mineral Rights	54
Water Rights	54
3.9. SURROUNDING LAND USE	55
Municipalities	55
Woman Creek Reservoir Authority	55
Open Space	55
Other Nearby Land Uses	56
3.10. OPEN SPACE, RECREATION AND TRAILS	56
City of Boulder Open Space and Mountain Parks	56
Boulder County Open Space	56
Jefferson County Open Space	56
City of Arvada Open Space	59
City of Westminster Open Space	59
City and County of Broomfield Open Space	59
Town of Superior Open Space	59
3.11. VISUAL RESOURCES	60
Views From Surrounding Areas	60
Views From Rocky Flats	60
Internal Views	60
Disturbed Areas	61
3.12. NOISE	61
3.13. AIR QUALITY	61
3.14. SOCIOECONOMICS	61
Population and Demographics	61
Employment	61
Income	61
3.15. REFERENCES	62
Chapter 4	65
4.1. WILDLIFE AND HABITAT AND PUBLIC USE MANAGEMENT DESCRIPTIONS	67
Wildlife and Habitat Management	67
Public Use Management	68
4.2. OBJECTIVES AND STRATEGIES	76
Goal 1. Wildlife and Habitat Management	76
Goal 2. Public Use, Education and Interpretation	84
Goal 3. Safety	92
Goal 4. Effective and Open Communication	93
Goal 5. Working with Others	94
Goal 6. Refuge Operations	95
4.3. ENVIRONMENTAL CONSEQUENCES SUMMARY	106
4.4. REFERENCES	108
Chapter 5	119
5.1. FUNDING AND PERSONNEL	119
5.2. STEP-DOWN MANAGEMENT PLANS	119
5.3. PARTNERSHIP OPPORTUNITIES	120
5.4. MONITORING AND EVALUATION	120
5.5. PLAN AMENDMENT AND REVISION	121
5.6. REFERENCES	121

Glossary	125
Appendices	131
Appendix a: Refuge Legislation	135
Appendix b: Compatibility Determinations	145
Appendix c: Laws and Executive Orders	162
Appendix d: Regulatory Letters about Future Refuge Management	171
Appendix e: Letter to RFCA Parties	175
Appendix f: Cost Details	179
Appendix g: Species List	185
Appendix h: Record of Decision	197
Appendix i: List of Preparers	215
Index	221

Figures

Figure 1. Regional Location	3
Figure 2. Rocky Flats Industrial Area and DOE Retained Area	8
Figure 3. Pre-Cleanup Plutonium Concentrations in Surface Soils	10
Figure 4. Comprehensive Conservation Planning Process	15
Figure 5. Surficial Geology	26
Figure 6. Soils	28
Figure 7. Water Resources	31
Figure 8. Vegetation	35
Figure 9. Noxious Weeds	38
Figure 10. Recent Fire History	40
Figure 11. Wildlife Resources	43
Figure 12. Potential Prairie Dog Habitat	44
Figure 13. Cultural Resources	50
Figure 14. Infrastructure, Easements, and Utilities	52
Figure 15. Regional Open Space	57
Figure 16. Regional Trails	58
Figure 17. CCP - Wildlife, Habitat & Public Use	69
Figure 18. Prescribed Fire and Grazing	79

Tables

Table 1. Estimated Increased Cancer Risk from Exposure to Residual Contamination	81
Table 2. Percentage of Scoping Comments by Topic	20
Table 3. Vegetation Communities at Rocky Flats	33
Table 4. Major Noxious Weeds at Rocky Flats	39
Table 5. Wildlife Species of State Special Concern at Rocky Flats	47
Table 6. Daily and Peak Hour Traffic Volume Summary	51
Table 7. Interpretive Themes	71
Table 8. Summary of Objectives and Strategies	98
Table 9. Summary of Environmental Consequences	110
Table 10. Estimated Costs	117

Acronym List

BOSMP	City of Boulder Open Space and Mountain Parks Department
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CCP	Comprehensive Conservation Plan
CDOW	Colorado Division of Wildlife
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CNHP	Colorado Natural Heritage Program
DOE	Department of Energy
DRCOG	Denver Regional Council of Governments
EIS	Environmental Impact Statement
ESA	Endangered Species Act
EPA	Environmental Protection Agency
FTE	Full-time employee
GPS	Global Positioning System
IPM	Integrated Pest Management
MMS	Maintenance Management System (database)
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NWR	National Wildlife Refuge
NWRS	National Wildlife Refuge System
NWTC	National Wind Technology Center
O&M	Operations and maintenance
RFCA	Rocky Flats Cleanup Agreement
RFCAB	Rocky Flats Citizen Advisory Board
RFCLG	Rocky Flats Coalition of Local Governments
RMA	Rocky Mountain Arsenal National Wildlife Refuge
ROD	Record of Decision
RONS	Refuge Operations Needs System

Summary



Summary

THE ROCKY FLATS NATIONAL WILDLIFE REFUGE

This document is a Final Comprehensive Conservation Plan (CCP) for the Rocky Flats National Wildlife Refuge (Rocky Flats NWR). The CCP will guide management of Refuge operations, habitat restoration and visitor services for the next 15 years.

The Rocky Flats site is a 6,240-acre former nuclear defense facility operated by the U.S. Department of Energy (DOE). All weapons manufacturing was performed in a 600-acre area in the middle of the site known as the Industrial Area. In 1992, the mission of the Rocky Flats site changed from weapons production to environmental cleanup and closure. The DOE is completing the cleanup in accordance with the Rocky Flats Cleanup Agreement (RFCA) under oversight by the U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE).

Under the Rocky Flats National Wildlife Refuge Act of 2001 (Refuge Act), the 6,240-acre Rocky Flats Environmental Technology Site will become the Rocky Flats NWR following certification from the EPA that cleanup and closure have been completed. At that time, the U.S. Fish & Wildlife Service (Service) will assume management responsibility for most of the site.

Five sequential steps must be completed before Rocky Flats becomes a Refuge. These steps are:

1. Service completes final CCP/EIS and issues a Record of Decision



The Refuge provides habitat for elk.

2. DOE completes site cleanup except for operations and maintenance (O&M) of cleanup and long-term monitoring facilities
3. EPA certifies completion of the cleanup
4. DOE transfers land to Department of the Interior
5. Department of the Interior establishes the Refuge and Service begins management and implementation of the CCP

The Service understands that some members of the public remain apprehensive about potential public use at Rocky Flats NWR due to the site's history. This CCP outlines how the Service will brief visitors about the site's



Big Bluestem in the xeric tallgrass prairie.

transformation from a nuclear weapons production facility to a National Wildlife Refuge. The Service will address public concerns about the safety of the Refuge by providing clear information that educates visitors about access restrictions and public use opportunities. This information will be available at all trailheads. The Service also will work with the DOE to develop signage and fencing or another means of boundary demarcation to clearly identify all areas that will be retained by DOE and are closed to public access.

An Environmental Impact Statement (EIS) that evaluates and compares the CCP and three other alternatives with respect to managing wildlife, habitats and human use of the proposed Refuge was developed in concurrence with this CCP and published as a separate document. Together with this planning document, the EIS discloses

effects of restoration and visitor use on important physical, biological, social and cultural resources.

REFUGE SIGNIFICANCE

In the Refuge Act, Congress identified the following significant qualities about the Rocky Flats site:

- The majority of the site has generally remained undisturbed since its acquisition by the government.
- The site preserves valuable open space and striking vistas of the Front Range mountain backdrop.
- The site provides habitat for many wildlife species, including a number of threatened and endangered species, and is marked by the presence of rare xeric tallgrass prairie plant communities.

REFUGE PURPOSE

The Refuge Act identified four purposes of the Rocky Flats NWR:

- Restoring and preserving native ecosystems.
- Providing habitat for, and population management of native plants and migratory and resident wildlife.
- Conserving threatened and endangered species.
- Providing opportunities for compatible scientific research.

The Refuge Act also provided some direction for managing the Refuge. The Service is to manage the Refuge to ensure that wildlife-dependent public uses and environmental education and interpretation are the priority public uses of the Refuge.

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The Service will conserve the diversity of native fauna.

VISION

During the initial planning process, the Service developed the following vision statement to describe what will be different in the future as a result of the CCP and to capture the essence of what the Service is trying to accomplish at the Refuge:

Rocky Flats National Wildlife Refuge is a healthy expanse of grasslands, shrublands and wetlands, including rare xeric tallgrass prairie, where natural processes support a broad range of native wildlife. The Refuge provides striking mountain and prairie views and opportunities to appreciate the Refuge resources in an urbanized area through compatible wildlife-dependent public uses and education. Working with others, the Refuge conserves the unique biotic communities and sustains wildlife populations at the interface of mountains and prairies on Colorado's Front Range.

GOALS

The Service also developed a set of goals to guide the planning effort and Refuge management:

Wildlife and Habitat Management

Conserve, restore and sustain the biological diversity of the native flora and fauna of the mountain/prairie interface with particular consideration given to threatened and endangered species.

Public Use, Education and Interpretation

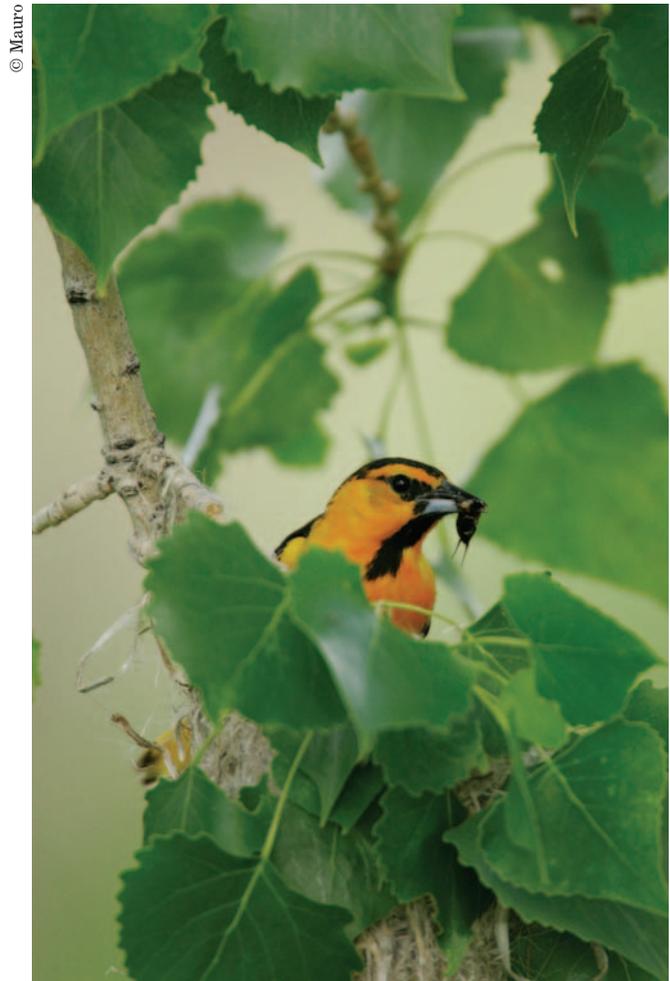
Provide visitors and students high quality recreational, educational and interpretive opportunities and foster an understanding and appreciation of: the Refuge's xeric tallgrass prairie; upland shrub and wetland habitats; native wildlife; the history of the site; and the National Wildlife Refuge System (NWRS).

Safety

Conduct operations and manage public access in accordance with the final Rocky Flats' cleanup decision documents to ensure the safety of the Refuge visitors, staff and neighbors.

Effective and Open Communication

Conduct a variety of communication outreach efforts to raise public awareness about the Refuge programs, management decisions, and the mission of the Service and the NWRS.



Quality wildlife viewing opportunities will foster appreciation of the Refuge's diverse habitats.

Working with Others

Foster beneficial partnerships with individuals, government agencies, non-governmental organizations, and others to promote resource conservation, compatible wildlife-related research, public use, site history, and infrastructure.

Refuge Operations

Based on available funds, provide facilities and staff to fulfill the Refuge vision and purpose.

PUBLIC INVOLVEMENT

Throughout the planning process, the Service has solicited input from the public. Public involvement in the planning process ensured that interested and affected individuals, organizations, agencies and governmental entities were consulted and provided opportunities to participate. Public involvement has:

- Informed the public about Rocky Flats NWR (planning updates, website, public meetings, presentations).
- Provided public input on key issues.
- Provided help in determining management direction of Rocky Flats NWR.

THE REFUGE'S RESOURCES

The Rocky Flats site is located at the interface of the Great Plains and Rocky Mountains. The western half of the site is characterized by the relatively level Rocky Flats pediment, which gives way to several finger-like drainages that slope down to the rolling plains in the eastern portion of the site.

A diverse mosaic of vegetation communities is found at Rocky Flats. Two of these vegetation communities, the



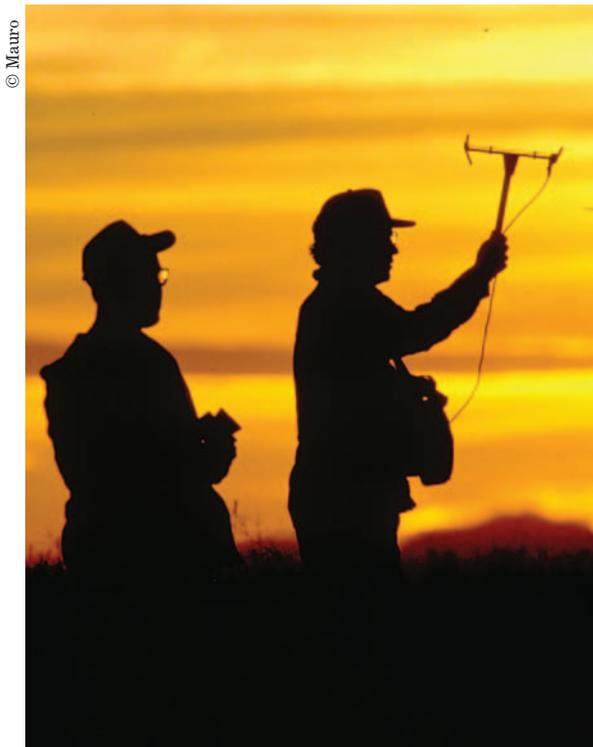
A field of wildflowers.

xeric tallgrass prairie and the tall upland shrubland, are considered to be rare in the region. Other vegetation communities include riparian woodland, riparian shrubland, wetlands, mesic mixed grassland, xeric needle and thread grassland, reclaimed mixed grassland, and ponderosa pine woodland.

Many areas of the Rocky Flats site have remained relatively undisturbed for the last 30 to 50 years, allowing them to retain diverse habitat and associated wildlife. These wildlife communities are supported by the regional network of protected open space that surrounds Rocky Flats on three sides and buffers wildlife habitat from urban development. Preble's meadow jumping mouse (Preble's), a threatened species, occurs in every major drainage on the Refuge, as well as wetlands and shrubland communities adjacent to the Rock Creek and Woman Creek drainages. A resident herd of about 160 deer inhabit the site and elk are occasionally present.

Cultural resource surveys have identified and recorded 45 cultural sites or isolated artifacts at Rocky Flats. None of the identified cultural resources are recommended as eligible for listing in the National Register of Historic Places. However, the Lindsay Ranch within the Rock Creek drainage provides opportunities to interpret the early history of settlement and ranching on the prairie.

The Rocky Flats site is located at the intersection of Jefferson, Boulder and Broomfield counties. The site is surrounded by open space to the north, east and west, and urban development to the northeast and southeast. Other nearby land uses include mining operations, wind energy research, and water collection and storage facilities.



Working with others on wildlife-related research is a Refuge goal.

ACTIVITIES OUTSIDE THE SCOPE OF THE CCP AND EIS

The legislation establishing Rocky Flats NWR requires that the Department of Energy (DOE) retain jurisdiction, authority and control over portions of the Rocky Flats site necessary for cleanup response actions. DOE anticipates that it will need to retain land in and around the current Industrial Area in order to maintain institutional controls and protect cleanup and monitoring systems.

Management alternatives for the DOE-retained lands were not considered in the EIS because the lands will not be part of the Refuge and the Service will not have authority to decide how those lands should be managed. The Service is recommending a fence that allows wildlife movement be built around the retained area to distinguish Refuge lands from DOE jurisdiction. The DOE does not anticipate transferring any lands that would require additional safety requirements for either the Refuge worker or the visitor.

OVERVIEW OF THE CCP

Four alternatives were developed following the public scoping process and a workshop involving the planning team and Service staff. The EIS analyzed the environmental consequences of each alternative. Alternative “B,” entitled “Wildlife, Habitat, and Public Use,” was selected as the preferred alternative and adopted by the Service as the final Comprehensive Conservation Plan.

The CCP emphasizes both wildlife and habitat conservation along with a moderate level of wildlife-dependent public use. Refuge-wide habitat conservation will include management of native plant communities, removal and revegetation of unused roads and stream crossings, management of deer and elk populations, and protection of Preble’s meadow jumping mouse habitat. Restoration will strive to replicate pre-settlement conditions.

Visitor use facilities will include about 16 miles of trails, a seasonally staffed visitor contact station, trailheads with parking, and developed overlooks. One trail down to the Lindsay Ranch will be open soon after Refuge establishment, while the remainder of the public use facilities will open after 5 years, when restoration is well underway. Most of the trails will use existing roads. Public access will be by foot, bicycle, horse, or car. A limited public hunting program will be developed in collaboration with Colorado Division of Wildlife (CDOW).

On- and off-site environmental education programs will focus on the prairie ecosystem and will primarily target high school and college students.

The Service will provide compatible scientific research opportunities that focus on wildlife habitat and interactions between wildlife and human use. Partnerships will be sought from federal, state and municipal agencies and private entities to help achieve Refuge goals and to conserve contiguous lands.

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The Lindsay Ranch barn will become an interpretive site.

OBJECTIVES AND STRATEGIES

The Service has developed objectives and strategies for the CCP. An objective is a general statement about what the Service wants to achieve on the Refuge, while a strategy is a specific action, tool, technique or combination of the above used to meet objectives. Chapter 4 describes the objectives and strategies in detail. The key objective topics are listed below.

WILDLIFE AND HABITAT MANAGEMENT

- Preble's habitat management
- Xeric tallgrass management
- Mixed grassland prairie management
- Road restoration and revegetation
- Weed management
- Deer and elk management
- Prairie dog management
- Species reintroduction

PUBLIC USE, EDUCATION AND INTERPRETATION

- Public access
- Visitor experience

- Interpretation
- Environmental education
- Hunting
- Recreation facilities

SAFETY

- Staff safety
- Visitor safety

OPEN AND EFFECTIVE COMMUNICATION

- Outreach efforts

WORKING WITH OTHERS

- Emergency response partnerships
- Conservation partnerships
- Research partnerships
- Volunteer partnerships

REFUGE OPERATIONS

- Staffing
- Operations and management facilities
- Cultural resource management



Mule deer are frequently sighted at the Refuge.

© USFWS



Sharp-tailed grouse is a likely candidate for reintroduction.

ENVIRONMENTAL CONSEQUENCES

The Comprehensive Conservation Plan will pose a variety of benefits and impacts to resources at Rocky Flats. Some of the greatest benefits will come from road removal and revegetation, weed management, and Preble's habitat management activities. The greatest impacts to Refuge resources will be the result of increased visitor use. The environmental consequences are summarized below and described in detail in the EIS.

Preble's Habitat Management. Preble's habitat will be protected and maintained. This will result in moderate, long-term benefits to Preble's and other species that depend on riparian habitat.

Grassland Management. Tallgrass and mixed grassland management strategies, along with weed and fire management and road removal and revegetation, will benefit grassland communities on the Refuge.

The planned restoration of non-native grasses in the hay meadow and other areas to native prairie will benefit the overall quality and diversity of mixed grassland habitat on the Refuge.

Road Restoration and Revegetation. The removal and revegetation of unused roads and stream crossings will provide a major long-term benefit to a variety of vegetation communities and related wildlife species.

Weed Management. Implementation of Integrated Pest Management (IPM) practices will benefit a variety of wildlife habitat types on the Refuge.

Deer and Elk Management. The establishment and achievement of population targets for deer and elk will benefit both those species and the habitat on which they depend.

Trail Development and Use. While the impacts of new trail construction will be negligible, public use of some trails could result in moderate long-term adverse impacts to wildlife species due to an increased human presence that may alter wildlife movement and foraging patterns. Some trail impacts will be reduced by the enforcement of seasonal trail closures.

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Lupine is one of many wildflowers found on the Refuge in the spring.

ROCKY FLATS ILLUSTRATIVE PLAN

This plan was developed as a presentation tool for illustrating how the Refuge will be developed and experienced by visitors once it is transferred to the Service and opened to the public. The plan offers insight into the visitor experience, revealing the look and feel of the Refuge's habitat and wildlife, trails and other other facilities.



Rocky Flats National Wildlife Refuge

A Prairie Refuge At The Foot Of The Rockies

SHAPINS
ASSOCIATES
ERO

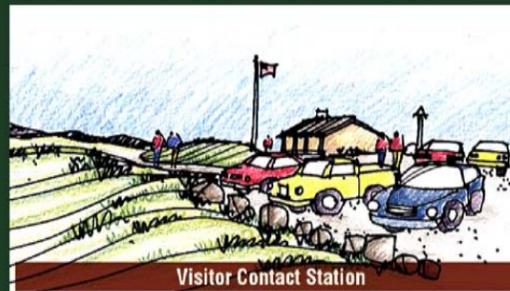
Visitors park and start their experience at the Visitor Contact Station.

Signs along the trails inform and educate.

Overlooks provide views of historic sites, prairie landscape and a city panorama.

Viewing blinds offer shade for enjoying the refuge's wildlife.

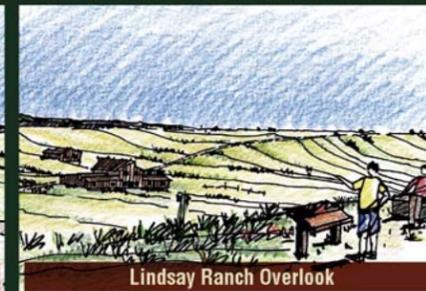
The trails are suitable for various forms of recreation.



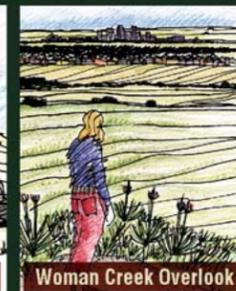
Visitor Contact Station



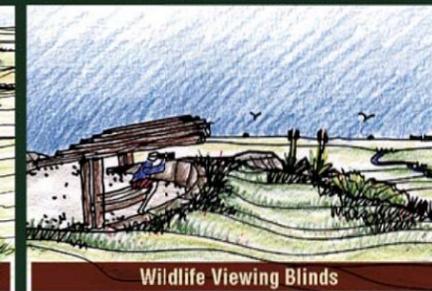
Interpretive Trail Signs



Lindsay Ranch Overlook



Woman Creek Overlook



Wildlife Viewing Blinds



Multi-Use Trail

chapter 1



PURPOSE AND NEED

Chapter 1. Purpose and Need

The Rocky Flats Environmental Technology Site is a 6,240-acre former nuclear defense facility operated by the U.S. Department of Energy (DOE). The site is 16 miles northwest of Denver, Colorado on the borders of Boulder, Broomfield, and Jefferson counties (Figure 1). The DOE acquired 2,519 acres in 1951, and an additional 4,027 acres in 1974 and 1975. Of these acres, 305 acres have been conveyed to the DOE's Wind Technology Site northwest of the site. All weapons manufacturing was performed in a 600-acre area in the middle of the site known as the Industrial Area. The area surrounding the Industrial Area is known as the Buffer Zone.

In 1992, the mission of the Rocky Flats site changed from weapons production to environmental cleanup and closure. The DOE is completing the cleanup in accordance with the Rocky Flats Cleanup Agreement (RFCA) under oversight by the U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE). The RFCA is a legally binding agreement between the EPA, CDPHE, and DOE that establishes the regulatory guidelines and framework for site cleanup. Because the EPA, CDPHE, and DOE signed the Rocky Flats Cleanup Agreement, these three agencies are known as the RFCA Parties.

During the comment period on the Draft CCP and EIS, numerous commentors had questions or concerns about the process of becoming a Refuge. Five sequential steps must be completed before Rocky Flats becomes a Refuge. The steps, discussed in more detail in the following sections, are:

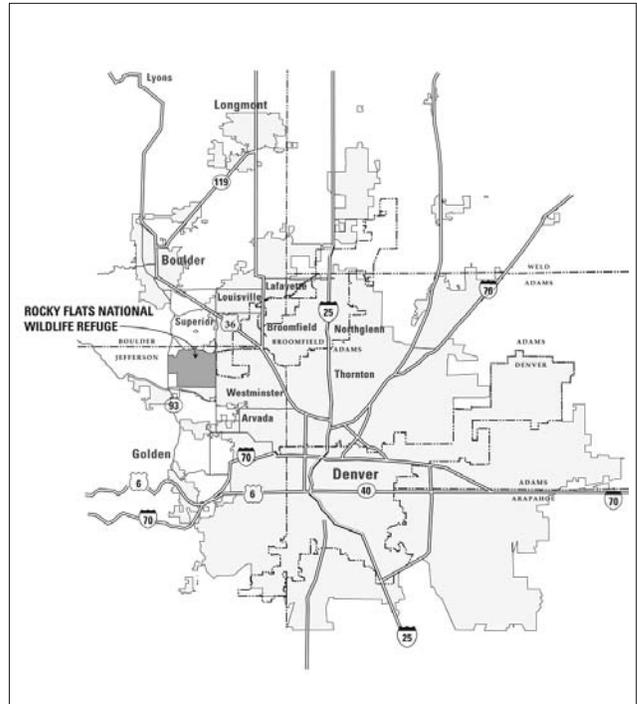


Figure 1. Regional Location.

1. Service completes final CCP/EIS and issues a Record of Decision
2. DOE completes site cleanup except for operations and maintenance of cleanup and monitoring facilities
3. EPA certifies completion of cleanup
4. DOE transfers land to Department of the Interior
5. Department of the Interior establishes the Refuge and Service begins management

DOE is currently completing a wide range of interim cleanup actions. When these activities are completed, expected sometime between 2005 and 2006, the DOE will prepare a Remedial Investigation/ Feasibility Study (RI/FS) report describing any remaining contamination at the site. The report also will describe any additional cleanup actions that DOE may need to take. The report will be summarized in a document known as the Proposed Plan, which will be released for public comment before being finalized. After public comment has been incorporated, the Proposed Plan will become the basis for

© REEIS



The Refuge site was a former nuclear defense facility operated by the U.S. Department of Energy (DOE).

a Corrective Action Decision/Record of Decision (CAD/ROD), which the RFCA Parties will sign. The CAD/ROD will determine the need for any additional cleanup, long-term monitoring, and land use controls necessary for the site.

Under the Rocky Flats National Wildlife Refuge Act of 2001 (P. L. 107-107) (Refuge Act - Appendix A), the site will become the Rocky Flats National Wildlife Refuge and be managed by the U.S. Fish and Wildlife Service (Service) when the EPA certifies that cleanup and closure at Rocky Flats have been completed and that all response actions are operating properly and successfully. Operations and maintenance (O&M) associated with response actions will be ongoing. "Response actions" are cleanup activities currently being undertaken or monitoring and maintenance activities following cleanup by the DOE at the Rocky Flats site. The EPA will not certify that cleanup and closure at Rocky Flats has been completed until after the RFCA Parties sign the CAD/ROD. The Service anticipates that EPA will de-list the site from the National Priorities List prior to certification. After EPA certification, DOE will transfer much of Rocky Flats to the Department of the Interior and the Service will manage it as a National Wildlife Refuge. DOE will be required to conduct post-closure environmental monitoring and remedy maintenance in accordance with a post-closure, long-term stewardship agreement approved by EPA and CDPHE. DOE will also review the cleanup remedy at least every 5 years with the EPA and CDPHE. The EPA and CDPHE can require DOE to undertake additional actions if post-cleanup monitoring indicates the cleanup is not protective of human health and the environment.

The majority of the site has remained undisturbed since its acquisition, and provides habitat for many wildlife species, including two species that are federally listed as threatened (bald eagle and Preble's meadow jumping mouse). Establishing the site as a unit of the National Wildlife Refuge System (NWRS) will promote the preservation and enhancement of its natural resources for present and future generations.

This document is a Final Comprehensive Conservation Plan (CCP) for the Rocky Flats National Wildlife Refuge. The CCP will guide management of Refuge operations, habitat restoration, and visitor services for the next 15 years. Guidance will be provided in the form of goals, objectives, strategies (Chapter 4) and compatibility determinations (Appendix B). Compatibility is discussed in more detail in a following *Compatibility Policy* section. This CCP is based on a Record of Decision (ROD) that identified a selected alternative (Appendix H). The selected alternative was one of the alternatives analyzed in

the Final EIS, Alternative B—Wildlife, Habitat, and Public Use. The EIS evaluates and compares four alternatives for managing wildlife, habitats, and human use of the proposed Refuge. It also describes the effects of restoration and visitor use on important physical, biological, social, and cultural resources.

1.1. LEGAL AND POLICY GUIDANCE

Refuges are managed to achieve the mission and goals of the NWRS and the designated purpose of the Refuge unit as described in establishing legislation, executive orders, or other establishing documents. Key concepts and guidance of the NWRS are provided in the National Wildlife Refuge System Administration Act of 1966 (P.L. 89-669), the Refuge Recreation Act of 1962 (P.L. 87-714), Title 50 of the Code of Federal Regulations, the Fish and Wildlife Service Manual and, most recently, the National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) (Improvement Act). The Improvement Act amends the Refuge System Administration Act by providing a unifying mission for the NWRS, a new process for determining compatible public uses on refuges, and a requirement that each refuge be managed under a CCP. The Improvement Act states that wildlife conservation is the priority of NWRS lands and that the Secretary of the Interior will ensure the biological integrity, diversity and environmental health of refuge lands are maintained. The Improvement Act requires the Service to monitor the status and trends of fish, wildlife and plants in each refuge. A list of other laws and executive orders that may affect the CCP for Rocky Flats NWR or the Service's implementation of the CCP is provided in Appendix C.

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The Service is the primary federal agency responsible for conserving and enhancing the nation's fish and wildlife populations and their habitats.

U.S. FISH & WILDLIFE SERVICE

The Service, an agency within the Department of the Interior, will manage the Rocky Flats NWR. The Service is the primary federal agency responsible for conserving and enhancing the nation's fish and wildlife populations and their habitats. Although the Service shares this responsibility with other federal, state, tribal, local and private entities, the Service has specific trust responsibilities for migratory birds, threatened and endangered species, and certain anadromous fish and marine mammals. The Service also has similar trust responsibilities for the lands and waters it administers to support the conservation and enhancement of fish and wildlife.

NATIONAL WILDLIFE REFUGE SYSTEM

MISSION AND GOALS

The mission of the NWRS is:

“To administer a national network of lands and waters for the conservation, management and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

(National Wildlife Refuge System Improvement Act of 1997.)

Since the first refuge was established in 1903, the NWRS has grown to more than 92 million acres in size. It includes more than 500 refuges, with at least one in every state and over 3,000 Waterfowl Production Areas. The needs of wildlife and their habitats come first on refuges, in contrast to other public lands managed for multiple uses.

Administration, management and growth of the NWRS are guided by the following goals:

- To fulfill the Service's statutory duty to achieve refuge purpose(s) and further the System mission
- To conserve, restore where appropriate, and enhance all species of fish, wildlife and plants that are endangered or threatened with becoming endangered
- To perpetuate migratory bird, interjurisdictional fish, and marine mammal populations
- To conserve a diversity of fish, wildlife and plants
- To conserve and restore as appropriate representative ecosystems of the United States, including the ecological processes characteristic of those ecosystems
- To foster understanding and instill appreciation of native fish, wildlife and plants and their conservation, by providing the public with safe, high quality and compatible wildlife-dependent public use. Such use includes hunting, fishing, wildlife observation and photography and environmental education and interpretation

COMPATIBILITY POLICY

Lands within the NWRS are different from federal multiple-use public lands, such as National Forest System lands, because they are closed to all public uses unless specifically and legally opened. A refuge use is not allowed unless it is determined to be compatible.

Recreational uses, including all actions associated with a recreational use, refuge management economic activities, or other use by the public, are considered to be a refuge use. A compatible use is a use that, in the sound professional judgment of the Refuge Manager, will not materially interfere with or detract from the fulfillment of the mission of the NWRS or the purposes of the Refuge. Sound professional judgment is defined as a decision that is consistent with principles of fish and wildlife management and administration, available science and resources, and adherence with law. The Improvement Act also states that compatible wildlife-dependent recreation uses are legitimate and appropriate priority general public uses. Six uses, hunting, fishing, wildlife observation, wildlife photography, environmental education, and interpretation, are to receive enhanced consideration in planning and management over all other general public uses of the NWRS. Whenever they are determined to be compatible, and consistent with public safety, these uses are to be provided on units of the NWRS.

Compatibility determinations are written determinations signed and dated by the Refuge Manager with concurrence of the Regional Chief, National Wildlife Refuge System, stating that a proposed or existing use of a national wildlife refuge is or is not a compatible use. Compatibility determinations are typically completed as part of the CCP or step-down management plan process. Draft compatibility determinations are open to public input and comment. Once a final compatibility determination is made by the Refuge Manager, with

Regional Chief concurrence, it is not subject to administrative appeal.

Facilities and activities associated with recreational public uses, or where there is an economic benefit associated with a use, require compatibility determinations. Refuge management activities such as invasive species control, prescribed fire, scientific monitoring and facilities for managing a refuge do not require compatibility determinations.

Four compatibility determinations for the CCP's public recreational activities can be found in Appendix B. Drafts of these compatibility determinations were available for public review and comment as part of the Draft CCP/EIS. Additional draft compatibility determinations are likely to be prepared and issued for public comment during the life of the plan in response to step-down management plans that may call for implementation of a refuge economic use (e.g. grazing), for specific research projects, or in response to third party requests for other refuge uses not addressed in this plan.

1.2. REFUGE SIGNIFICANCE, PURPOSE, VISION AND GOALS

SIGNIFICANCE

In the Refuge Act, Congress found that the Rocky Flats site had several significant qualities:

- The majority of the Rocky Flats site has generally remained undisturbed since its acquisition by the federal government.
- The State of Colorado is experiencing increasing growth and development, especially in the metropolitan Denver Front Range area in the vicinity of the Rocky Flats site. That growth and development reduces the amount of open space and thereby diminishes for many metropolitan Denver communities the vistas of the striking Front Range mountain backdrop.
- The Rocky Flats site provides habitat for many wildlife species, including a number of threatened and endangered species, and is marked by the presence of rare xeric tallgrass prairie plant communities. Establishing the site as a unit of the NWRs will promote the preservation and enhancement of those resources for present and future generations.

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Deer with fawn.

PURPOSE AND DIRECTION

As discussed previously, the Rocky Flats NWR was established by the Refuge Act. The Refuge Act identified four purposes of the Rocky Flats NWR:

- Restoring and preserving native ecosystems
- Providing habitat for and population management of native plants and migratory and resident wildlife
- Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act)
- Providing opportunities for compatible scientific research

The Refuge Act also provided some direction for managing the Refuge. The Service is to manage the Refuge to ensure that wildlife-dependent public uses and environmental education and interpretation are the priority public uses of the Refuge and to comply with all response actions.

VISION

At the beginning of the planning process, the Service developed a vision for the Refuge. A vision describes what will be different in the future as a result of the CCP and is the essence of what the Service is trying to accomplish at the Refuge. The vision is a future-oriented statement designed to be achieved through Refuge management by the end of the 15-year CCP planning horizon. The vision for the Refuge is:

Rocky Flats National Wildlife Refuge is a healthy expanse of grasslands, shrublands and wetlands, including rare xeric tallgrass prairie, where natural processes support a broad range of native wildlife. The Refuge provides striking mountain and prairie views and opportunities to appreciate the Refuge resources in an urbanized area through compatible wildlife-dependent public uses and education. Working with others, the Refuge conserves the unique biotic communities and sustains wildlife populations at the interface of mountains and prairies on Colorado's Front Range.

GOALS

The Service also developed a set of goals based on the Refuge Act and information developed during project planning. The Service established six goals for Refuge management.

Goal 1. Wildlife and Habitat Management. Conserve, restore and sustain biological diversity of the native flora and fauna of the mountain/prairie interface with particular consideration given to threatened and endangered species.

Goal 2. Public Use, Education and Interpretation. Provide visitors and students high quality recreational, educational and interpretive opportunities and foster an understanding and appreciation of the Refuge's xeric tallgrass prairie, upland shrub and wetland habitats; native wildlife; the history of the site; and the NWRS.

Goal 3. Safety. Conduct operations and manage public access in accordance with the final Rocky Flats' cleanup decision documents to ensure the safety of the Refuge visitors, staff and neighbors.

Goal 4. Effective and Open Communication. Conduct communication outreach efforts to raise public awareness about the Refuge programs, management decisions and the mission of the Service and the NWRS among visitors, students and nearby residents.

Goal 5. Working with Others. Foster beneficial partnerships with individuals, government agencies, non-governmental organizations, and others to promote resource conservation, compatible wildlife-related research, public use, site history and infrastructure.

Goal 6. Refuge Operations. Based on available funds, provide facilities and staff to fulfill the Refuge vision and purpose.

1.3. SELECTION AND IMPLEMENTATION OF THE CCP

The Mountain and Prairie Regional Director of the Service selected the alternative that is to be implemented as the Rocky Flats National Wildlife Refuge CCP. This decision was made in recognition of the environmental effects of each of the alternatives considered in the Final EIS, which was filed with the EPA and made available to the public. The Regional Director's selection of the CCP was disclosed in the Record of Decision (Appendix H). Implementation of the CCP will begin after the DOE transfers primary administrative jurisdiction of Rocky Flats lands to the Service and the Refuge is formally established.

1.4. ADJACENT LAND PROTECTION

While the CCP does not constitute a commitment for funding the protection of lands outside the Refuge's boundary, the Service may pursue habitat-protection partnerships, conservation easements and/or acquisition of lands west of the Refuge. The protection of the grassland habitat that buffers the Refuge's western boundary (east of Highway 93) is important for the health of ungulate populations that migrate from the foothills down to the prairie. The protection of wildlife corridors was raised as an issue in public scoping and was frequently reiterated in subsequent public meetings. Degradation of this habitat may deter wildlife from migrating to the Refuge and threaten existing ungulate populations that reside and/or calve within the Refuge.

The Service is currently working on a new national land conservation policy and strategic policy and growth initiative. This policy will develop a decision-making process for the growth of the NWRS and guide individual refuges in evaluating lands suitable for addition to the NWRS. The process will help ensure that lands the Service protects are of national and regional importance and meet certain nationwide standards and goals.

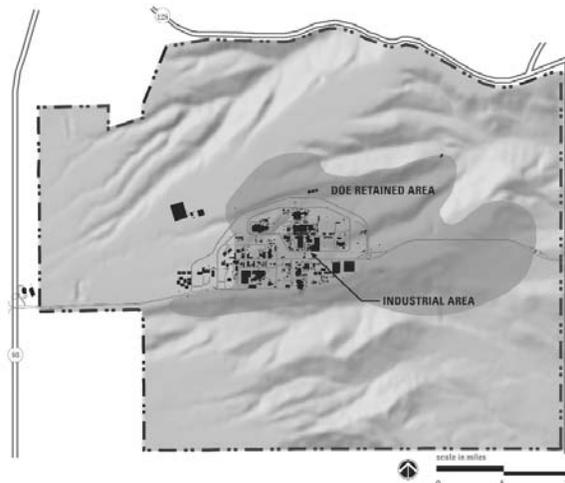
The Service’s land acquisition policy is to obtain the minimum interest necessary to satisfy refuge objectives. Conservation easements can sometimes be used in this context, when they are proven to be a cost-effective habitat protection measure. In general, conservation easements must preclude the destruction or degradation of habitat and allow refuge staff to adequately manage uses of the area for the benefit of wildlife.

1.5. ACTIVITIES OUTSIDE THE SCOPE OF THE CCP AND EIS

The Rocky Flats site is undergoing cleanup by the DOE with oversight of CDPHE and EPA. The Service will not accept transfer of administrative jurisdiction, or as discussed previously, assume full responsibility for managing the Refuge until the EPA has deemed the cleanup complete. It is not known exactly how long cleanup might take, or what effect cleanup activities might have on Refuge resources and uses. The DOE currently anticipates portions of the site will be transferred to the Service sometime between 2006 and 2008.

The legislation establishing Rocky Flats NWR requires that the DOE retain jurisdiction, authority, and control over portions of Rocky Flats necessary for cleanup response actions. DOE anticipates that it will retain land in and around the Industrial Area to maintain institutional

Figure 2. Rocky Flats Industrial Area and DOE Retained Area.



controls, and to protect cleanup facilities and monitoring systems. The DOE-retained area may be up to 1,200 acres, but the area’s final size and configuration will not be determined until the final cleanup is completed and the retained area is agreed to by the RFCA Parties. The DOE retained area tentatively identified is shown in Figure 2; it is subject to change before DOE transfers lands to the U.S. Fish and Wildlife Service.

Management alternatives for the DOE retained area were not considered in the EIS because the lands will not be part of the Refuge and the Service will not have authority to decide how those lands are managed. However, RFCA requires that the entire site, including the area retained by DOE, be cleaned up to a level that will protect human health and the environment as well as ecological receptors. Specifically, the cleanup will protect the Refuge worker and hence, the less exposed Refuge visitor. Existing concentrations of plutonium, a contaminant found in soils inside and outside the anticipated DOE retained area, are

Table 1. Estimated Increased Cancer Risk from Exposure to Residual Contamination

	Soil Plutonium Concentration			
	50 pCi/g	7 pCi/g	1 pCi/g	0.1 pCi/g
	Area retained by DOE		Areas to become the Refuge	
Refuge Worker*	1 in 133.3 thousand	1 in 1 million	1 in 6.7 million	1 in 66.7 million
Refuge Visitor*	1 in 227.3 thousand	1 in 1.7 million	1 in 11.1 million	1 in 125 million

Source Point estimations from the Remedial Soil Action Level Model

*Exposure Assumptions:

- Refuge Worker – 4 hours indoors and 4 hours outside for 250 days a year for 18.7 years
- Refuge Visitor – 2.5 hours outside for 100 days a year for 6 years (child) or 24 years (adult)

very low in surface soils in the lands to be transferred to the Service. Further characterization of the future Refuge area is ongoing. Pursuant to Attachment 5 of RFCA, which was approved by EPA and CDPHE, DOE will remove surface soils with a plutonium level of 50 picocuries per gram (pCi/g) or more (Figure 3). A curie is a unit of measurement for plutonium, and a picocurie is a trillionth of a curie. Fifty pCi/g will be protective of a Refuge worker who is exposed to this level on a full-time basis at Rocky Flats. DOE anticipates retaining certain lands containing less than 50 pCi/g of plutonium for remedy-related purposes, consistent with the provisions of the Refuge Act. An example boundary for DOE retained lands is shown in Figure 2. However, no decisions have been made regarding the specific boundaries and acreage of the DOE retained lands. These decisions will be made during the RI/FS-CAD/ROD process described earlier.

The majority of land that will become the Refuge will contain less than 1 pCi/g of plutonium.

Some areas within the DOE retained area had a plutonium concentration of more than 50 pCi/g. As discussed in Chapter 3, elevated plutonium concentrations are associated with an area known as the 903 pad. As part of cleanup, DOE removed all surface soils with a plutonium concentration of more than 50 pCi/g around the 903 pad.

The Service believes that the health risk from working on or visiting Refuge lands will be low. As shown in Table 1, the estimated increased cancer risk from exposure to residual soil contamination of 7 pCi/g is 1 in 1 million for the Refuge worker, and 0.6 in 1 million (or 6 in 10 million) for the Refuge visitor. As shown in Figure 3, the majority of the public use facilities will be located in areas where the residual contamination is much lower (less than 1 pCi/g).

Lands that would require additional safety requirements or restrictions for either the refuge worker or visitor will not be transferred to the Service for the Refuge. The risk assessment efforts that resulted in the 50 pCi/g surface soil cleanup action level were inclusive of Refuge management activities such as trail building, fence construction and prescribed fire, and visitor use activities such as hiking, biking, and horseback riding. The risk assessment and cleanup protections were designed to be safe for the Refuge worker, Refuge visitor, and the greater community.

A Memorandum of Understanding (MOU) between the Department of the Interior and DOE will guide the transition of Rocky Flats to its status as a National



The amount and type of public use emerged as a significant issue during the planning process.

Wildlife Refuge. The Service does not intend to accept transfer of primary administrative jurisdiction for any land at Rocky Flats until the MOU is finalized. Following cleanup and closure, future agreements may provide for Service involvement in managing the wildlife and habitat resources on the retained area, under DOE supervision. Because DOE will retain administrative jurisdiction and manage the retained area, which will be surrounded by the Refuge, the Service is recommending a 4-strand, barbed-wire fence that allows wildlife movement be built around the retained area. The Service is also recommending that appropriate signs be placed near the boundary to distinguish Refuge lands from DOE lands (see Appendix E, letter to RFCA parties). Although no public access to the DOE retained area is proposed in this CCP, and the Service has recommended that the DOE retained lands be posted with signs that prohibit public entry, the cleanup levels being implemented will result in a landscape that is safe for human entry.

The Service will not use the land at Rocky Flats for residential or “bunkhouse” facilities during the life of this CCP. If such a use is considered in the future, the Service will obtain approval from the CDPHE and the EPA, and will notify the public during the planning process.

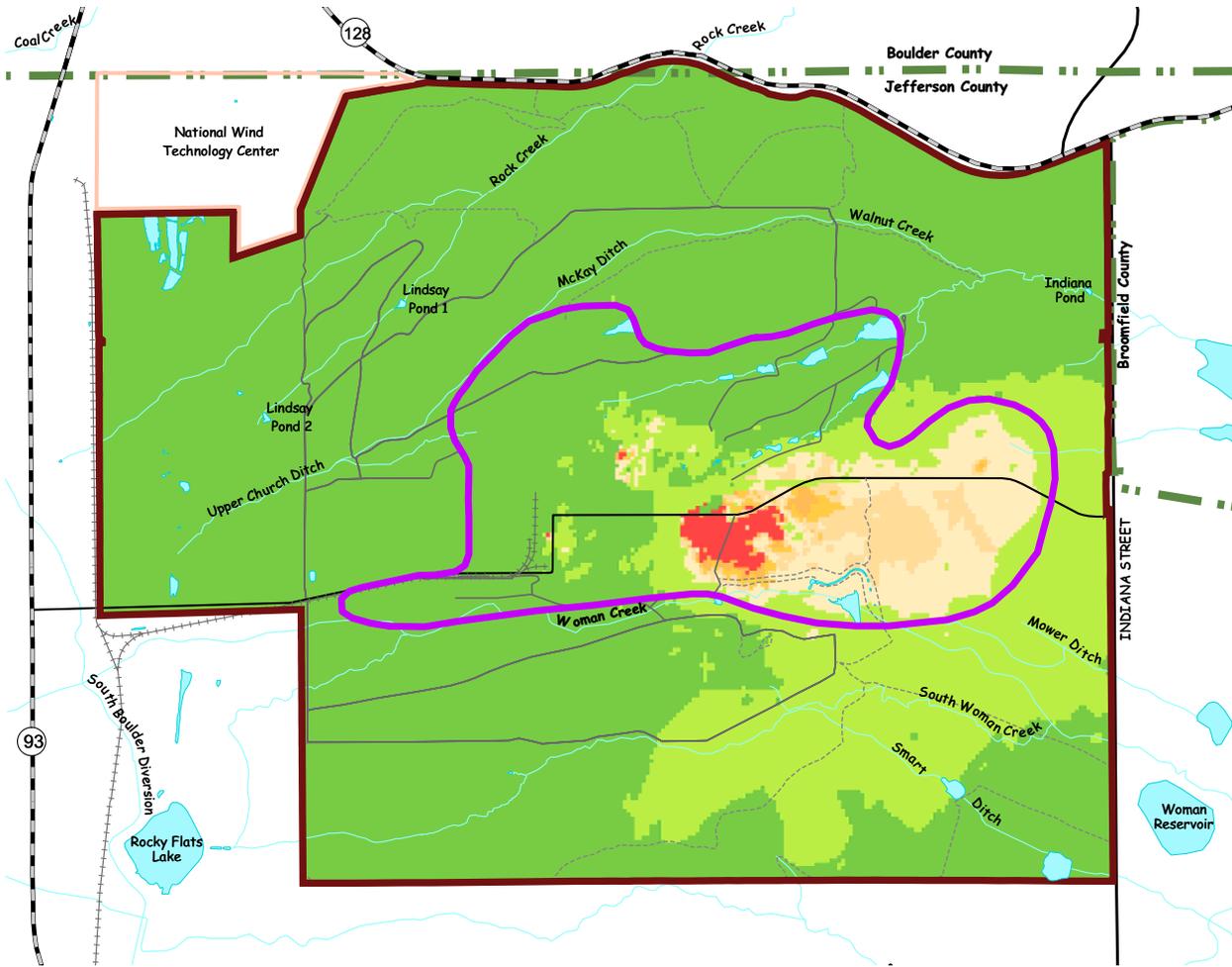
The EIS does not analyze different scenarios for the cleanup activities because they are outside the scope of Refuge management activities considered in the CCP. A cleaned-up site provides the baseline for analysis. Detailed information describing the remaining contamination at the site will be presented in DOE’s RI/FS Report to be published prior to EPA’s certification of completion of the cleanup. Readers interested in additional information on



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Pre-Cleanup Plutonium Concentrations in Surface Soils

Plutonium 239/240 (pCi/g)

- > 50 (Surface soils to be removed during cleanup)
- 7 - 50 (Areas anticipated to be retained by DOE)
- 1 - 7 (Refuge Lands)
- < 1 (Refuge Lands)
- DOE Retained Area (Subject to Change)

Data provided by U.S. Department of Energy
(Additional characterization will occur throughout the ongoing cleanup process.)



Estimated Increased Cancer Risk from Human Exposure

	7 pCi/g	1 pCi/g	0.1 pCi/g
Refuge Worker	1 in 1 million	1 in 6.7 million	1 in 66.7 million
Refuge Visitor	1 in 1.7 million	1 in 11.1 million	1 in 125 million

Figure 3. Pre-Cleanup Plutonium Concentrations in Surface Soils

cleanup activities should contact the DOE at (303) 966-4546, the EPA at (303) 312-6251, or the Colorado Department of Public Health and Environment at (303) 692-3300.

1.6. FUTURE PLANNING

The CCP will be adjusted to include new and improved information as it becomes available over the course of the CCP's 15-year duration. Implementation of the CCP will be monitored and reviewed regularly during inspections and programmatic evaluations. Budget requests and annual work plans will be tied directly to the CCP. Fifteen years after the Refuge has been established, the CCP will be formally revised, following the process used on this CCP. Any substantive changes to the CCP before the 15-year period will involve a public process. However, the Refuge Manager has the authority under Title 50 CFR, to take immediate actions outside this plan as necessary to respond to emergencies and protect wildlife and public safety.

The CCP describes the desired future conditions of the Refuge and provides long-range guidance and management direction. Chapter 4 describes objectives and strategies that the Service will use to achieve the desired future conditions. During the 15-year life of this plan, the Service will prepare additional plans, called step-down management plans. A step-down management plan provides specific guidance for the Service to follow to achieve objectives or implement management strategies related to specific management topics such as

habitat, fire and public use. Step-down plans will be developed as the need arises. The preparation of new step-down plans typically will require further compliance with Service planning policies and procedures, including opportunities for public review and comment. The Service anticipates the following plans will be needed at the Refuge:

- Vegetation and Wildlife Management Plan
- Integrated Pest Management Plan
- Fire Management Plan
- Visitor Services Plan
- Health and Safety Plan
- Historic Preservation Plan

A Visitor Services Plan would be an umbrella document that would include interpretation, environmental education, hunting management and research protocols.

1.7. REFERENCES

U.S. Fish & Wildlife Service. 2000. National Wildlife Refuge System Administration Act as Amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Planning Policy; Notice. Federal Register 65:33891-33919. May 25.

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The Service has recommended a barbed-wire fence to demarcate the boundary between the Refuge and DOE retained lands.

chapter 2



PLANNING PROCESS

Chapter 2. Planning Process

This chapter provides an overview of the planning process and describes the Service's efforts to involve the public in the development of the Rocky Flats CCP and EIS (CCP/EIS). Public involvement was an important component of the CCP/EIS project. During the scoping phase of the project, the Service sought input from the public and interested organizations and agencies to help direct the CCP/EIS process. Scoping helped identify specific opportunities, issues, concerns and ideas related to the management of the future Refuge. This section also includes a summary of the significant issues that were identified following the analysis of all comments collected through the various public scoping activities and a review of the requirements of the Improvement Act and NEPA.

2.1 OVERVIEW OF PLANNING PROCESS

The planning process for the CCP/EIS officially began August 23, 2002 when a Notice of Intent (NOI) to prepare a comprehensive management plan was published in the Federal Register (Vol. 67: 54667-54668). The Service undertook pre-planning steps prior to the NOI date to

ensure that the planning process was thorough and fair. The CCP/EIS for the Rocky Flats NWR is intended to comply with the Wildlife Refuge Improvement Act and the National Environmental Policy Act (NEPA) and their implementing regulations. The Service issued a final refuge planning policy in 2000 that established requirements and guidance for NWR planning, which includes CCPs and step-down management plans. This policy ensures that planning efforts comply with the provisions of the Improvement Act (U.S Fish & Wildlife Service 2000). The planning policy identifies several steps of the CCP and EIS process (Figure 4):

- Form a planning team and conduct pre-planning
- Initiate public involvement and scoping
- Review Draft Vision Statement and Goals and determine significant issues
- Develop and analyze alternatives, including the Proposed Action

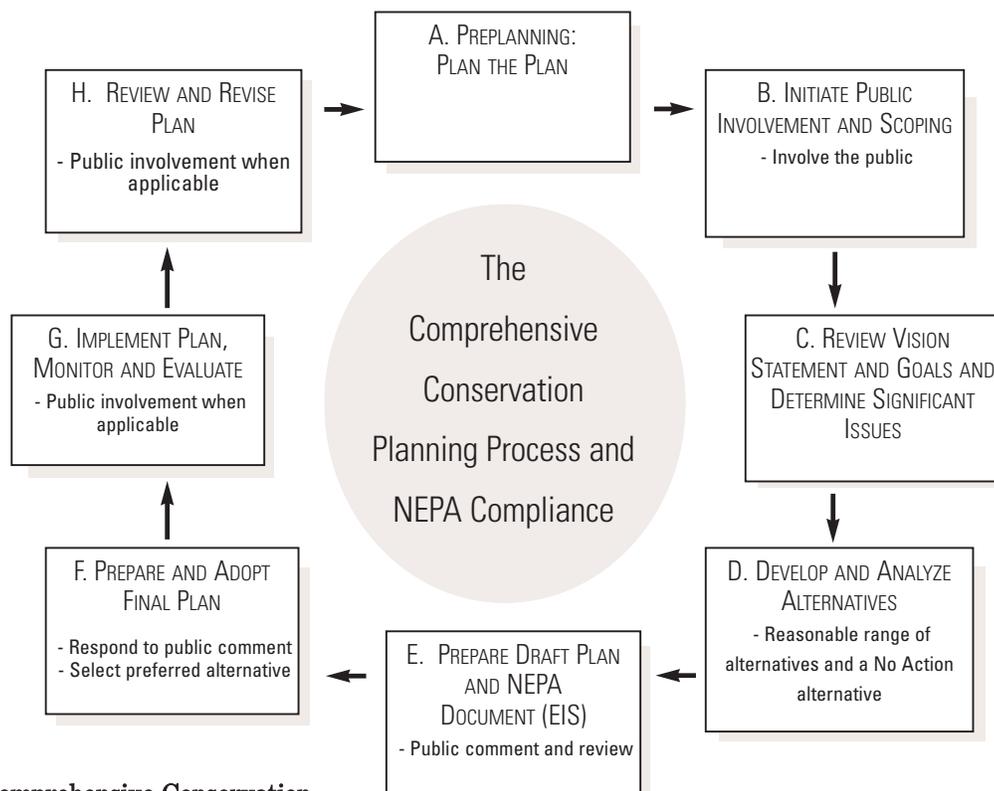


Figure 4. Comprehensive Conservation Planning Process.

- Prepare Draft CCP and EIS
- Prepare and adopt Final CCP and EIS and issue a Record of Decision (ROD)
- Implement plan, monitor and evaluate
- Review and revise plan

The Service began the pre-planning process after the Refuge Act was passed in December 2001. A planning team comprised of Service staff and outside consultants was formed in May 2002. Next the planning team facilitated an interagency workshop to identify a draft Refuge vision and goals in July 2002. During this pre-planning phase, the team collected available information about the resources of Rocky Flats and the surrounding area. This information was summarized in a Resource Inventory Report for the site (U.S Fish & Wildlife Service 2003b).

After reviewing comments from public workshops, the core team refined the vision and goals statements and initiated the alternative development process. The team developed three viable management alternatives in addition to a No Action Alternative, as required by NEPA. Each alternative was defined by a set of objectives and strategies that responded to the significant issues raised during scoping. The alternatives were then submitted for public review.

Once public comments were collected, the alternative plans were refined and the proposed action selected. The team then drafted the preliminary CCP/EIS. At this point, the Refuge Manager made preliminary determinations as to whether or not proposed uses were compatible with the Refuge System Mission and/or refuge purpose(s). Once this was completed, the draft CCP/EIS was made available for public review. The core team recorded all public comments and developed responses to those considered substantive.

The CCP and EIS were revised and finalized based on analysis of public comments. At this time, the CCP and EIS were divided and published as separate documents. A Notice of Availability (NOA) of the Final EIS and CCP was published in the Federal Register December 2004. In accordance with NEPA, the Service's regional director issued a record of decision (ROD) on the CCP 30 days after the notice in the Federal Register was published. The ROD disclosed the alternative selected by the regional director and the reasons for its selection. The final CCP was then released in April 2005. The final CCP or a summary of the document was made available to interested parties.

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The Service sought input from the public throughout the planning process.

2.2 PUBLIC INVOLVEMENT

In accordance with the National Wildlife Refuge System Improvement Act of 1997, the Service's Refuge Planning Policy requires substantial and significant public involvement throughout the planning process. The Refuge Planning Policy draws from the public involvement requirements outlined in the NEPA guidelines and other pertinent laws, executive orders, regulations, policies and guidelines.

During the pre-planning phase, the planning team developed a Public Involvement Plan that described how agencies and the public could participate in the planning process (U.S. Fish & Wildlife Service 2002). Public involvement in the planning process ensured that interested and affected individuals, organizations, agencies and governmental entities were consulted and provided opportunities to participate. Public involvement in the Refuge CCP/EIS process served the following functions:

- Informed public about the proposed Rocky Flats NWR
- Collected public input on key issues and concerns
- Provided help in determining management direction of Rocky Flats NWR

Several communication tools were used to engage the public. Over the course of the project, the planning team published 7 "Planning Update" newsletters that provided periodic reports to stakeholders. Workshops, public meetings, and public hearings were held in the communities surrounding Rocky Flats NWR to solicit

public input. A website provided an overview of Rocky Flats and the CCP process, information about upcoming public meetings and other important dates, a comment submission area, and a download area for planning documents. In addition, notifications of public meetings and document availability were distributed through Federal Register notices, media press releases and advertisements in local papers. Furthermore, presentations and briefings of the project's status were made to key stakeholder groups.

PROJECT SCOPING

Since public input was to involve both idea generation and idea review, the Service worked to establish a dialogue with interested individuals and groups. The objective of the scoping process was to gather the full range of comments, questions and concerns that the public has about the future Rocky Flats NWR. Scoping helped identify specific opportunities, issues, concerns and ideas related to the management of the Refuge. Professional facilitators on the planning team were instrumental in organizing forums for public participation.

Initial Consultations

The scoping process began with informal public agency consultations in February 2002. The Refuge Act required the Service to consult with a variety of local and state officials to develop the Public Involvement Plan.

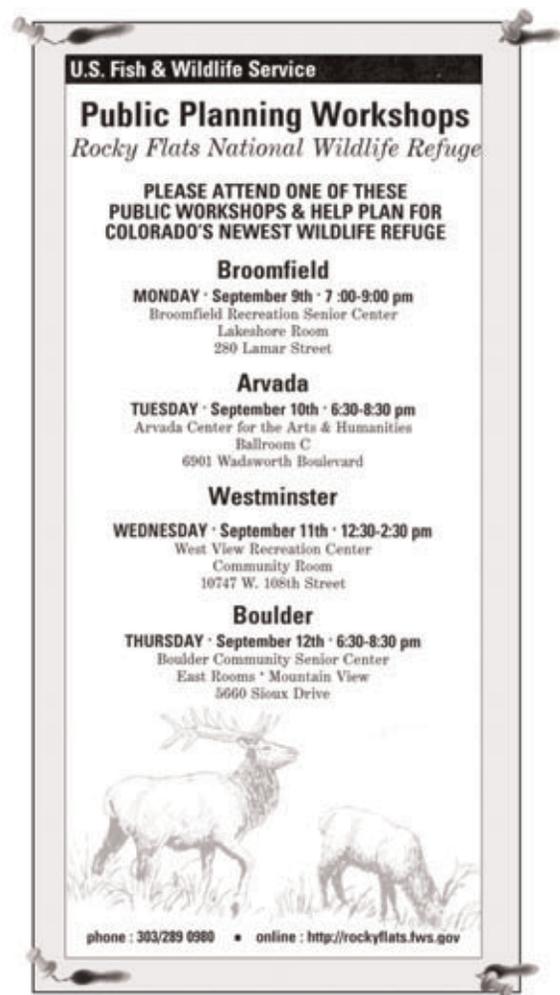
Service staff met with representatives from communities, agencies, and businesses that may have an interest in the Rocky Flats CCP/EIS process. The Service also met with state representatives, including the offices of the Governor, the Attorney General and the CDPHE to help develop the public process. The purpose of these meetings was to brief the stakeholders on the planning process, and solicit their comments and concerns for the scoping process.

Between February 6 and April 12, 2002, the Refuge Manager and Planning Team Leader met individually with each member of the Rocky Flats Coalition of Local Governments (RFCLOG). The RFCLOG is a coalition of seven local governments (Boulder County, Jefferson County, City and County of Broomfield, and the cities of Arvada, Boulder, Westminster, and Superior). All the local governments had questions about developing the Memorandum of Understanding between DOE and the Service in addition to the planning process. Copies of the Service's policy on Planning and Compatibility were distributed at the meetings. On July 23, 2002, Service staff met with the Rocky Flats Coalition of Local Governments (RFCLOG). Service staff also met with representatives of the cities of Golden, Thornton, Northglenn, Louisville and Lafayette.

The formal scoping period for the general public began on August 23, 2002, with the publication of a Notice of Intent in the Federal Register. The Notice of Intent notified the public of the Service's intent to begin the CCP/EIS process, set the dates for public scoping meetings, and solicited public comments. The scoping period ended on October 31, 2002.

Public Scoping Meetings

Public scoping meetings were held in September 2002 in Broomfield, Arvada, Westminster, and Boulder. The scoping meetings provided a forum for community residents, public agency members, and interested organizations to express their concerns. To ensure that people's concerns were captured and that they felt comfortable giving verbal comments, participants were allowed to form small groups - each facilitated by a planning team member.



To solicit public input, the Service conducted workshops in the communities surrounding Rocky Flats.



In order to keep stakeholders informed, the planning team produced “Planning Update” newsletters throughout the course of the project.

Several weeks before the public scoping meetings, Planning Update #1, an announcement of the scoping meetings, was mailed to 889 individuals, businesses and organizations. The mailing list consisted of individuals and organizations that had previously expressed an interest in Rocky Flats-related issues and were on the Rocky Flats Citizen Advisory Board (RFCAB), the DOE, or Kaiser-Hill (DOE contractor) mailing lists.

Planning Update #1 described the planning process, the draft vision and goals for the Refuge, and the dates, times and locations of the public scoping meetings. Information contained in Planning Update #1 also was announced at RFCLOG and RFCAB meetings. A press release soliciting participation in the scoping process was also sent to 23 local and national media organizations. The Service placed advertisements in seven newspapers to publicize the project and invite the public to the scoping meetings. Flyers announcing the public scoping meetings were posted in public buildings in several communities surrounding the Rocky Flats site.

Project Website

The Rocky Flats NWR web site (<http://rockyflats.fws.gov/>) was published for public access during the week of July 21, 2002, and contained information about the public scoping meetings, as well as

downloadable versions of all of the available public scoping documents.

Throughout the project additional planning documents and announcements of upcoming events were posted on the website. The website also provided an avenue for submitting questions and comments to the planning team.



The Rocky Flats CCP website provided important information about the planning process and allowed stakeholders to submit their comments and questions.

Public Agency Meeting

On August 19, 2002, the Service hosted a meeting for representatives from various state and federal agencies interested in the future management of the Rocky Flats site. The following agencies were represented:

- Agency for Toxic Substances and Disease Registry
- City of Westminster
- Colorado Attorney General's Office
- Colorado Department of Agriculture
- Colorado Department of Public Health and Environment
- Colorado Department of Transportation
- Colorado Division of Minerals and Geology
- Colorado Division of Wildlife
- Colorado Geological Survey
- Colorado Historical Society
- Colorado State Parks
- Denver Regional Council of Governments
- Federal Aviation Administration
- Governor Owens' Office
- Rocky Flats Coalition of Local Governments
- State Land Board
- Senator Allard's Office
- U.S. Army Corps of Engineers
- U.S. Department of Energy
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- Urban Drainage and Flood Control District
- Xcel Energy

Focus Groups

Six focus group meetings were held on October 28, 29, and 30, 2002. The purpose of the focus group meetings was to convene a forum to better explore key issues, as well as the potential management alternatives and their implications. Participants were invited because of their



Focus groups considered wildlife management and several other subjects.

knowledge of a particular subject. Focus groups were convened around the following topics: Recreation; Environmental Education; Public Perception/Public Information: Managing a NWR in the Context of Remediation and Contamination; Trails; Vegetation Management; and Wildlife Management.

Native American Tribes

Representatives from the Arapaho Tribe, Cheyenne and Arapaho Tribes of Oklahoma, Northern Cheyenne Tribe, the Ute Indian Tribe Business Council, Southern Ute Tribe, and the Ute Mountain Ute Tribe were contacted by the Service to solicit their input for the scoping process. The Service received responses from the Cheyenne and Arapaho Tribes of Oklahoma, but did not receive any scoping comments from the Tribes.

Results from Scoping

During the course of the public scoping process, the planning team received 1,881 comments from the public or other stakeholders. Every comment was considered and grouped by topic area (Table 2). Major topics included public use, cultural resources, real estate, infrastructure, vegetation management, and wildlife management. Other topics that have attracted comments include Refuge operations, cleanup level and remediation issues, and comments on the planning process.

Written submissions came in the form of letters, email, questionnaires, and notes from telephone calls. Questionnaires were distributed at the public scoping meetings and could also be downloaded from the project website. Sixty-two written submissions were received. All written submissions were carefully read and evaluated to determine the specific issues or concerns that were being addressed.

Table 2. Percentage of Scoping Comments by Topic

Topic Area	Percentage of Comments
Public Use	31
Vegetation	13
Wildlife	12
Infrastructure	11
Contamination†	10
Property‡	8
Cultural Resources	6
Refuge Operations	6
Planning Process	3

† Issues related to contamination and site cleanup are outside the scope of this CCP/EIS, as explained in Section 1.8.

‡ Issues related to property include mineral rights, potential land acquisitions, and the transportation corridor right of way, all of which are discussed in Section 2.9.

ISSUES

The Service prepared a Scoping Report that describes in detail the scoping process and results (U.S Fish & Wildlife Service 2003a). Several significant issues were identified following the analysis of all comments collected through the various public scoping activities and a review of the requirements of the Improvement Act and NEPA. These issues, as well as the many other substantive issues identified during scoping, were considered during the formulation of alternatives for future Refuge management. The significant issues are summarized in the following sections.

Vegetation Management. Native plant community preservation and restoration, fire management and weed control.

Wildlife Management. Wildlife species protection and management, including strategies to address species reintroduction, population management, migration corridors and coordination with regional wildlife managers.

Public Use. Policies and facility options to address several scenarios, from no access to multiple recreational and educational uses. This includes a range of facility development to accommodate these scenarios.

Cultural Resources. Preservation and recognition of elements related to site history, including Lindsay Ranch structures and Cold War heritage.

Property. Privately owned mineral rights, transportation right of way, and adjacent land owner relationships.

Infrastructure. Facilities, such as roads, fences, signs and water systems, that accommodate Refuge needs and user comfort/safety. Also includes surface water hydrology and maintenance of water quality.

Refuge Operations. Staffing requirements and management strategies to preserve significant resources and coordinate with surrounding communities and landowners.

Issues outside the Scope of the CCP and EIS

While issues about site cleanup were raised frequently, the issue is outside the scope of the planning effort. The Service routinely communicated to the public that Rocky Flats will not be transferred to the Service until the EPA certifies that cleanup and closure are complete. Contamination and remediation issues are being addressed by DOE, the U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment. However, due to the public's concern about this issue, the final CCP and EIS includes an expanded discussion of issues related to cleanup (see Section 1.5).

Alternative Workshops

After the significant issues were identified during the scoping period, the Service developed alternatives for the management of the Refuge. In May 2003, the Service held public workshops in Broomfield, Arvada, Westminster, and Boulder to present four preliminary management alternatives. The alternatives ranged from providing little or no public access to extensive public access and facility development. At each workshop, the participants were encouraged to provide comments on the alternatives, and were specifically asked what they liked or disliked about them.

Issues to Reconsider

The public expressed differing opinions on several issues. The following were the predominant concerns:

Proposed Action. Re-examine the Service's Proposed Action (Alternative B) and determine if it should remain as is or be modified in some specific way.

Equestrian Use. Evaluate whether equestrian use is consistent with the Refuge goals and if it is compatible with the Refuge purposes.

Trail Design. Consider modifying trail configurations to improve connectivity and enhance visitor experience while minimizing potential impacts on sensitive natural resources.

Restoration. Consider phasing options that would accelerate habitat conservation and delay public use facility and programming development until restoration efforts are underway.

Public Preferences

Comments on the alternatives expressed a range of opinions about the site. Some people believed that no public access was appropriate, while others wished for extensive public use. More people supported the Service's Proposed Action (Alternative B), either as it is or with some modifications. A majority of the comments were related to public use opportunities (42 percent) and habitat and wildlife management (30 percent). These percentages reflect what was heard through the comment period, which ended in June 2003.

After the workshops were completed, the Service re-evaluated all the issues and revised some portions of the alternatives.

Comments on the Draft CCP/EIS

The Draft CCP/EIS was available for public review from February 19, 2004 to April 25, 2004. In March 2004, the Service held four public hearings on the draft in Westminster, Boulder, Arvada, and Broomfield. The meetings were conducted as hearings in which individuals were given 3 minutes to comment and their comments were recorded by a court reporter. The Refuge Manager,

attended all meetings and conducted a question and answer session following the comments.

In addition to the public hearing testimony, comments were also received in the form of letters, emails, form letters, and petitions. During the Draft CCP/EIS comment period, the Service received over 5,000 comments from 251 individuals, 34 agencies/organizations, and 933 form letters. From those who specifically stated a preference for a particular alternative, 21 percent supported Alternative A, 63 percent supported Alternative B (the Service's proposed action), 15 percent for Alternative C, and 1 percent for Alternative D.

The most significant issue raised was public access. Due to the history of contamination and the ongoing cleanup efforts, members of the public were concerned about plans for public access and very interested in how the DOE retained area should be demarcated. Other significant issues included public hunting, prescribed fire and grazing, prairie dog management, water rights, Lindsay Ranch, cumulative impacts of adjacent mining, and nearby transportation improvements.

All of the comments received on the Draft CCP/EIS, as well as responses to substantive comments, are included or summarized in Appendix H to the Final CCP/EIS—Comments and Responses on the Draft Environmental Impact Statement (under a separate cover). Public

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Four preliminary management alternatives were presented at public workshops.

comments were also made available for review at the Front Range Community College Library, Rocky Flats Reading Room or at the Rocky Mountain Arsenal National Wildlife Refuge Visitor Center on weekends.

Changes to the Draft CCP/EIS

As a result of public comments and concerns about the Draft CCP/EIS, several changes were made to the Final CCP. The most significant changes to the CCP include the following:

- **Trails** - New trail configurations (See Figure 17).
- **Contamination** - Expanded discussion of contamination, cleanup, and the DOE retained lands (See CCP Sections 1.5, 3.2 and Appendix E).

chapter 3



REFUGE AND RESOURCE DESCRIPTIONS

Chapter 3. Refuge and Resource Descriptions

3.1. INTRODUCTION

This chapter describes the environmental resources at Rocky Flats that may be affected by the implementation of the Comprehensive Conservation Plan. As discussed elsewhere in this document, DOE will retain primary jurisdiction over an area in the center of the Refuge that encompasses the former Industrial Area and any cleanup, closure and monitoring facilities. The resource descriptions and acreage measurements in this chapter encompass the entire Rocky Flats site and do not distinguish between Refuge lands and land that will be retained by DOE for long-term monitoring.

3.2. GEOLOGY AND SOILS

The 6,240-acre Rocky Flats site is at the interface of the Great Plains and Rocky Mountains, about 2 miles east of the foothill escarpment in Jefferson County, Colorado. Site elevation ranges from 5,500 feet in the southeastern corner to 6,200 feet near the current west entrance gate. The western half of the site is characterized by the relatively flat Rocky Flats pediment, which gives way to several finger-like drainages that slope down to the rolling plains in the eastern portion of the site.

SURFICIAL AND BEDROCK GEOLOGY

Geologic units at the Rocky Flats site range from unconsolidated surficial deposits to various bedrock layers. Surficial deposits in the western portions of the site are characterized by the Rocky Flats Alluvium, clayey and sandy gravels up to 100 feet thick (Figure 5). The steeper slopes below the Rocky Flats Alluvium in the central portion of the site generally consist of landslide deposits. Surficial deposits in the eastern portion of the site consist of colluvium 3 to 15 feet thick and terrace alluvium 10 to 20 feet thick (Shroba and Carrara 1996).

The Rocky Flats Alluvium is underlain by the Arapahoe Formation, composed of sandstones, siltstones and claystones that range from 0 to 50 feet thick. In several locations, springs emerge at the contact of the Rocky Flats Alluvium and the Arapahoe Formation. These springs support the tall upland shrubland community described in the Vegetation Communities section.

Beneath the Arapahoe Formation lies the Laramie Formation, composed of 600 to 800 feet of silty to clayey sandstones, clayey siltstones and claystones. The Laramie



The gravelly soils of Rocky Flats have been mined for decades.

Formation is underlain by the Fox Hills Sandstone and Pierre Shale.

GEOLOGIC HAZARDS

Landslides and landslide deposits are common along the steep hillsides and incised drainages at the base of the Rocky Flats Alluvium escarpment. These deposits occur in areas where bedrock layers such as the Arapahoe Formation are capped by unconsolidated gravel formations such as the Rocky Flats Alluvium. While most of the landslide deposits are of Pleistocene origin, some, especially those in the Rock Creek drainage, are likely more recent. Many landslide areas have high swell potential and are subject to sheet wash and soil creep (Shroba and Carrara 1996).

Seven geologic fault lines have been identified at Rocky Flats, including a northeast-trending reverse fault that extends across the western part of the Industrial Area. These faults are not believed to be a concern associated with current or future human activities or facilities at the site (DOE 1997).

MINERAL RESOURCES

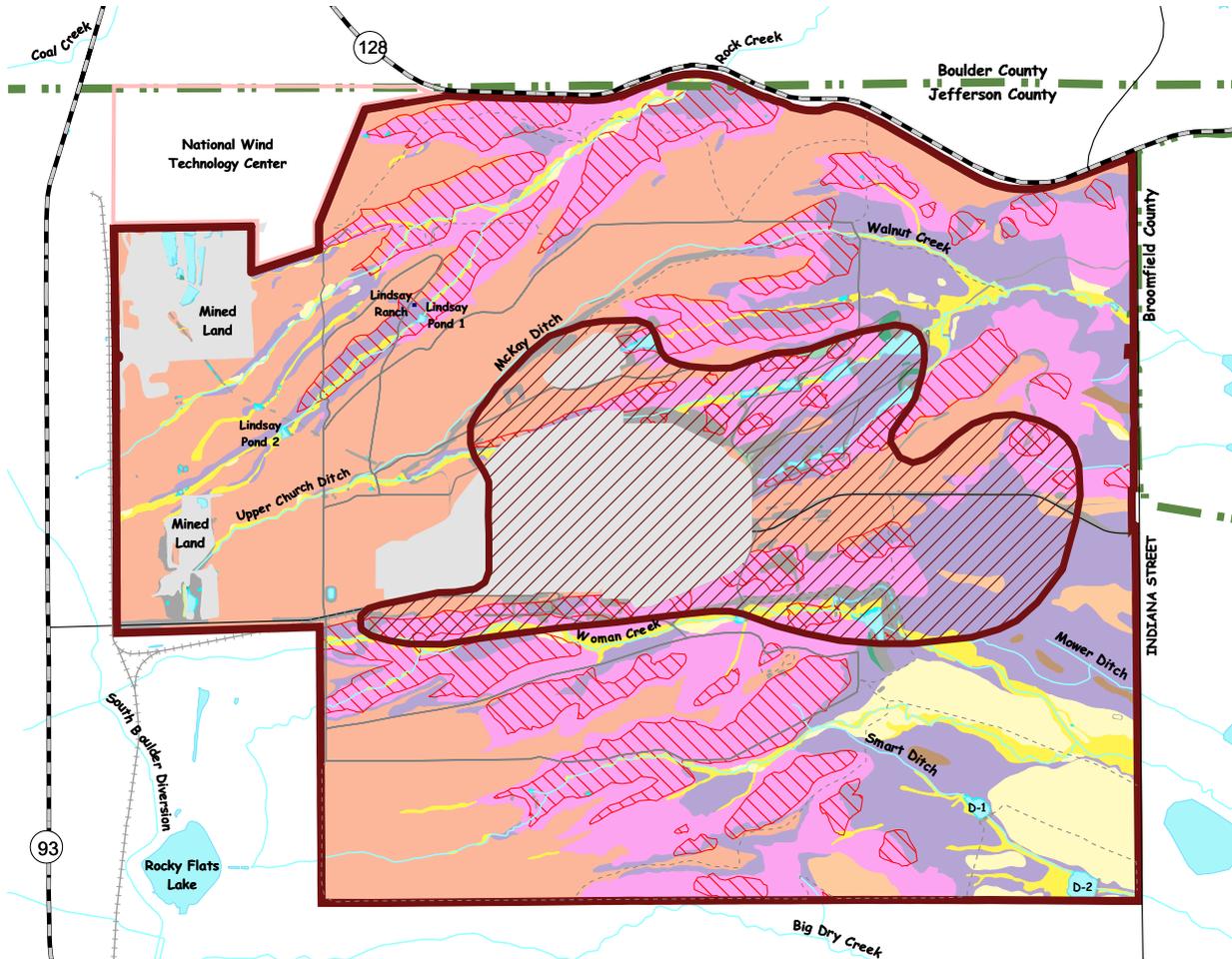
The Rocky Flats Alluvium is believed to be the only mineral resource feasible for development at the Refuge. Historically, uranium, coal, oil and natural gas have been extracted near the Rocky Flats site. None of these mineral resources, however, appear to be feasible for development (DOE 1997). Mining rights and permits at the site are described in the *Infrastructure, Easements and Utilities* section.



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Surficial Geology

Geologic Units

- | | | | |
|---|---|---|---------------------------------------|
|  | Fox Hills Sandstone |  | Slocum Alluvium |
|  | Laramie Formation |  | Terrace Alluvium |
|  | Colluvium |  | Verdos Alluvium |
|  | Landslide Deposits |  | Artificial Fill |
|  | Post-Piney Creek and Piney Creek Alluvium |  | Landslide Area |
|  | Rocky Flats Alluvium |  | DOE Retained Area (Subject to Change) |



November 2004



Figure 5. Surficial Geology

SOILS

The soils at the site formed from alluvium (stream deposited), colluvium (gravity deposited), or residuum (exposed bedrock material). Soils in the western half of the site formed from alluvium, while those in the eastern half of the site formed from colluvium and residuum.

Soils in the western half of the site are primarily the Flatirons and Nederland soils that formed in the Rocky Flats Alluvium (Figure 5). Flatirons soils consist of very cobbly to very stony loamy surface soils and clayey subsoils. These soils are deep and well drained. Flatirons soils are located on western pediments and ridgetops, as well as the upper portions of hillsides. Nederland soils have very cobbly loamy surface and subsoils. They are deep and well drained. Nederland soils are located on steeper hillsides and valley slopes in the western portion of Rocky Flats.

Soils in the eastern portion of the site consist primarily of Denver, Kutch, Midway, Valmont, Haverson and Nunn soils. The Denver-Kutch-Midway complex consists of soils with loamy surfaces and clayey subsoils. The Denver soils are deep and well drained, the Kutch soils are moderately deep and well drained, while Midway soils are shallow and well drained. The Denver-Kutch-Midway complex is the dominant soil map unit in the eastern portion of Rocky Flats, although it also occurs in the western half along hillsides. Denver and Kutch soils are found on side slopes and the Midway soils occur on steeper slopes. Valmont soils consist of deep, well-drained soils with loamy surface soils and loamy to clayey subsoils. This soil type is found in the northeast corner of Rocky Flats on the eastward extension of the Rock Creek/Walnut Creek drainage divide. Haverson soils are loamy soils located in floodplains or low terraces. Nunn soils consist of deep, well-drained soils on lower slopes adjacent to drainage bottoms. They have loamy surface soils and loamy to clayey subsoils.

SOIL CONTAMINATION

DOE Retained Area

Elevated concentrations of plutonium and americium are currently found in the eastern portion of the site. Concentrations are highest within the DOE retained area, adjacent to an area known as the 903 Pad (DOE 1997). The 903 Pad was an area where industrial oil mixed with plutonium was stored in steel drums from 1958 to 1968. This mixture leaked onto the soils in the storage area, and these contaminated soils were subsequently blown by the wind and deposited to the east and southeast. In 1968, the storage area was capped with asphalt to prevent

further release of contaminated soils. Because the area near the 903 Pad had plutonium concentrations greater than 50 pCi/g, DOE removed all surface soils with a plutonium concentration greater than 50 pCi/g (as well as some other areas) and replaced them with uncontaminated soils. It is anticipated that DOE will retain jurisdiction over the area, which will not be open for public use.

Refuge Lands

Existing concentrations of plutonium, the primary contaminant found in soils outside the DOE retained area, are very low (less than 7 pCi/g) in the surface soils in the lands to be transferred to the Service. Most of the Refuge surface soils have a plutonium concentration less than 1 pCi/g (Figure 3). As discussed in Chapter 1, DOE is anticipating retaining management responsibility for all lands with surface soils having a plutonium concentration more than approximately 7 pCi/g, in order to minimize the potential for erosion and surface water impacts (Figure 3). Some surface soils south of the east entrance road have a plutonium concentration between 1 and 7 pCi/g (Figure 3). Because plutonium was distributed east of the 903 Pad by wind, and because of the environmental characteristics of plutonium, elevated plutonium concentrations are limited to surface soils on the Refuge, and are not present in subsurface soils.

The DOE does not anticipate transferring any lands for use as a refuge that would require additional safety requirements for either the refuge worker or the visitor. Lands that would require use restrictions will not be transferred to the Service for the Refuge. The risk assessment efforts that resulted in the 50 pCi/g cleanup action level were inclusive of Refuge management activities such as trail building, fence construction and maintenance, visitor use, and prescribed fire and were designed to be safe for the Refuge worker, Refuge visitors, including children, and the greater community.

3.3. WATER RESOURCES

SURFACE WATER

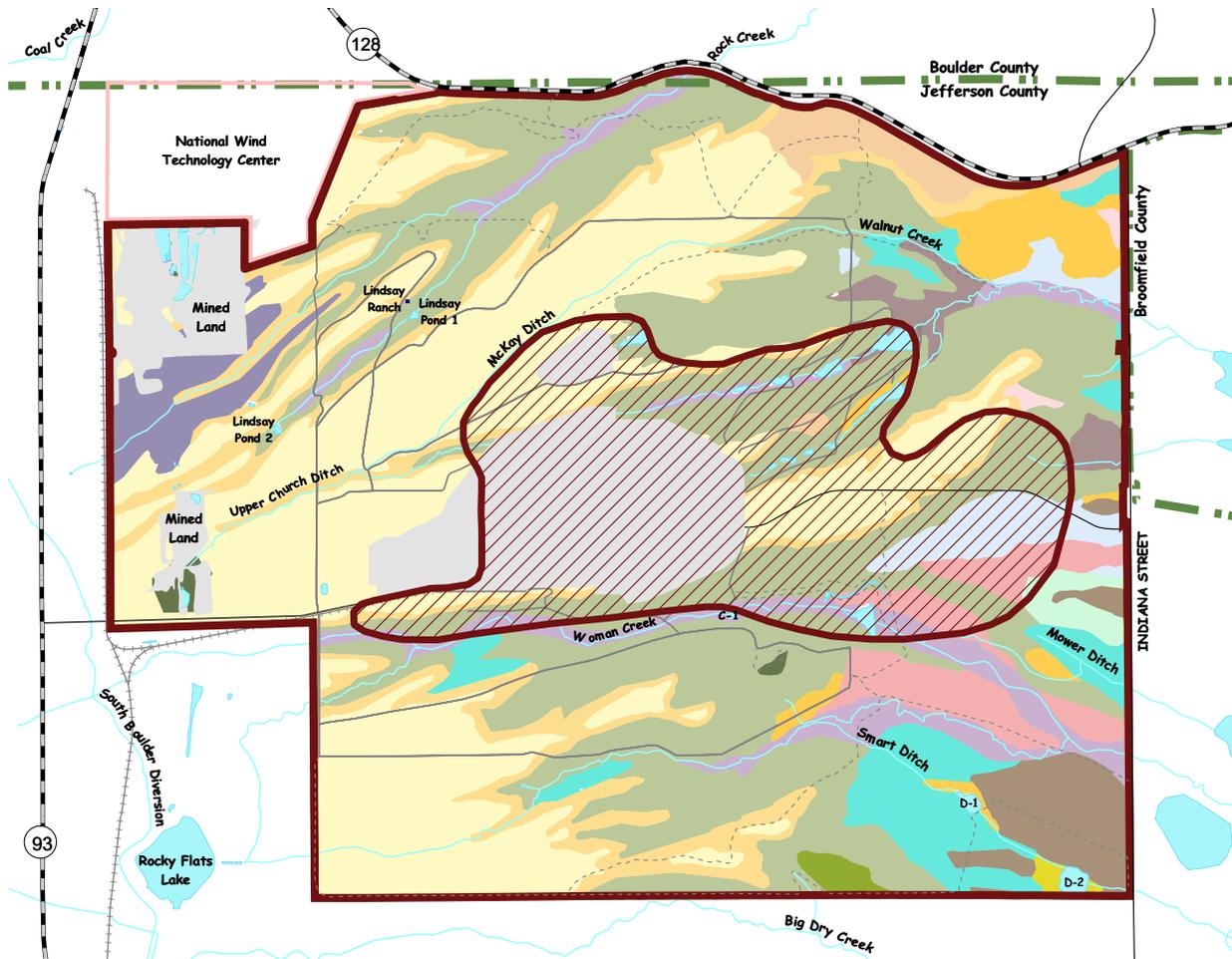
Three drainages originate on or near Rocky Flats: Rock Creek, Walnut Creek, and Woman Creek (Figure 7). Stream levels fluctuate depending on the season and amount of precipitation. Most streamflow is controlled by ground water discharge; streamflow is higher when ground water levels are higher, such as in the spring. Surface sheet flow is only a significant contributor to stream flows during high precipitation events (Kaiser-Hill 2002b).



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Soils

Soil Map Units

- | | |
|--|--|
| Denver clay loam | Midway clay loam |
| Denver-Kutch clay loams | Nederland very cobbly sandy loam |
| Denver-Kutch-Midway clay loams | Nunn clay loam |
| Englewood clay loam | Pits, gravel |
| Flatirons very cobbly sandy loam | Standley-Nunn gravelly clay loams |
| Flatirons very stony sandy loam | Valmont clay loam |
| Haverson loam | Veldkamp-Nederland very cobbly sandy loams |
| Leyden-Primen-Standley cobbly clay loams | Willowman-Leyden cobbly loams |
| McClave clay loam | DOE Retained Area (Subject to Change) |

0 0.5 1 Mile

November 2004



Figure 6. Soils

There are currently 16 ponds on the Rocky Flats site, 12 of which are within the area that will be retained by DOE. The others are the two Lindsay Ponds on Rock Creek and ponds D-1 and D-2 on the Smart Ditch.

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Drainages such as Rock Creek are prominent features of the Refuge.

Rock Creek

The Rock Creek basin drains the northwest portion of the site. This drainage has a relatively flat headwater area to the west and steep gullies and channels to the east where it cuts below the Rocky Flats Alluvium into bedrock formations. Rock Creek is hydrologically isolated from the rest of the site and receives no water from the Industrial Area. Surface water generally originates from precipitation and shallow ground water discharge. Rock Creek continues off-site to the northeast, where it joins Coal Creek in the Boulder Creek basin (DOE 1997).

Walnut Creek

Walnut Creek consists of three tributaries that drain the central portion of the site, including most of the Industrial Area. The northernmost branch, No Name Gulch, begins at the outfall of the East Landfill Pond. The central branch, North Walnut Creek, begins at the northern edge of the Industrial Area and flow through the “A” series ponds. South Walnut Creek begins in the Industrial Area and used to collect discharge from the Rocky Flats Wastewater Treatment Plant before flowing through the “B” series ponds. The three branches converge near the eastern Rocky Flats boundary before flowing off-site to the east. Walnut Creek is typically dry during most of the year.

Woman Creek

The Woman Creek basin drains the southern portion of the Rocky Flats site. The Woman Creek drainage consists

of two major branches that begin off of the Rocky Flats site to the southwest. The main stem of Woman Creek flows across the site, passing south of the Industrial Area and flowing through the C-1 pond. The Mower Ditch diverts most of the Woman Creek flow into Mower Reservoir, east of Rocky Flats.

Typically, Woman Creek has no streamflow in late spring and summer. All surface flows are lost to ground water in the warmer months. In the winter, most of the baseflow is from Antelope Springs. Woman Creek is largely unaffected by pond releases (pond C-2 is discharged about once a year, with a release of 38 acre-feet).

Big Dry Creek

A small portion of Rocky Flats near its southern boundary lies within the Big Dry Creek drainage, although the creek itself does not flow onto the site. Big Dry Creek flows into Standley Lake about 1 mile east of Indiana Street.

Ditches

Besides the three principal drainages, several ditches cross the site. The South Interceptor Ditch currently collects runoff from south of the Industrial Area, which channels surface runoff into the C-2 pond. The Smart Ditch originates at Rocky Flats Lake to the southwest of the site, enters Rocky Flats and flows through the South Woman Creek drainage for almost 2 miles before splitting off toward Standley Lake to the southeast. The Mower Ditch diverts most of Woman Creek toward Mower Reservoir to the east. The Upper Church Ditch enters Rocky Flats from the west and traverses the Rock Creek/Walnut Creek drainage divide until it exits the site in the northeast corner. The McKay Ditch runs from the west side of the Industrial Area into the Walnut Creek drainage. The Kinnear Ditch diverts water from Coal Creek west of Rocky Flats and conveys it to the Woman Creek channel (Advanced Sciences 1991).

Off-Site Surface Water

Standley Lake is a large water supply reservoir that serves nearby communities. It is located about 1 mile southeast of Rocky Flats on the mainstem of Big Dry Creek (Figure 7). Upstream of Standley Lake just east of the Rocky Flats site, the Woman Creek Reservoir was constructed to intercept any Woman Creek flows that are not diverted through the Mower Ditch. This reservoir is intended to protect water quality in Standley Lake. Mower Reservoir is located north of Woman Creek Reservoir on the east side of Indiana Street and receives Woman Creek water through the Mower Ditch.



Surface water is stored in small ponds in many places on the Refuge.

Immediately east of the site lies Great Western Reservoir, owned by the City and County of Broomfield and used for irrigation. Rocky Flats Lake lies to the south and west of the site on land owned by the State of Colorado. Rocky Flats Lake provides water to the Smart Ditch, which runs across the southern end of the site toward the D-2 pond and eventually, into Standley Lake.

GROUND WATER

Hydrogeology at the Rocky Flats site is characterized by three distinct units: the upper alluvial aquifer, lower aquitard, and the Laramie-Fox Hills aquifer. An aquifer is a geologic formation that has sufficient permeability to store and/or convey water. An aquitard is a confining layer with low permeability that can store water but does not allow water to readily pass through it.

The upper alluvial aquifer is comprised of the unconsolidated materials that can be as much as 100 feet thick in the western portions of Rocky Flats. This aquifer is generally recharged from precipitation or surface water. Ground water in the unconsolidated alluvial aquifer is generally close to the land surface, with an average depth of 11 feet below ground surface.

Several springs have emerged in areas where the contact of the upper aquifer and the lower aquitard is exposed at the surface. While most of these springs occur within the

Rock Creek drainage, Antelope Springs in the Woman Creek drainage has the largest discharge at the site. Antelope Springs discharges continuously over several acres.

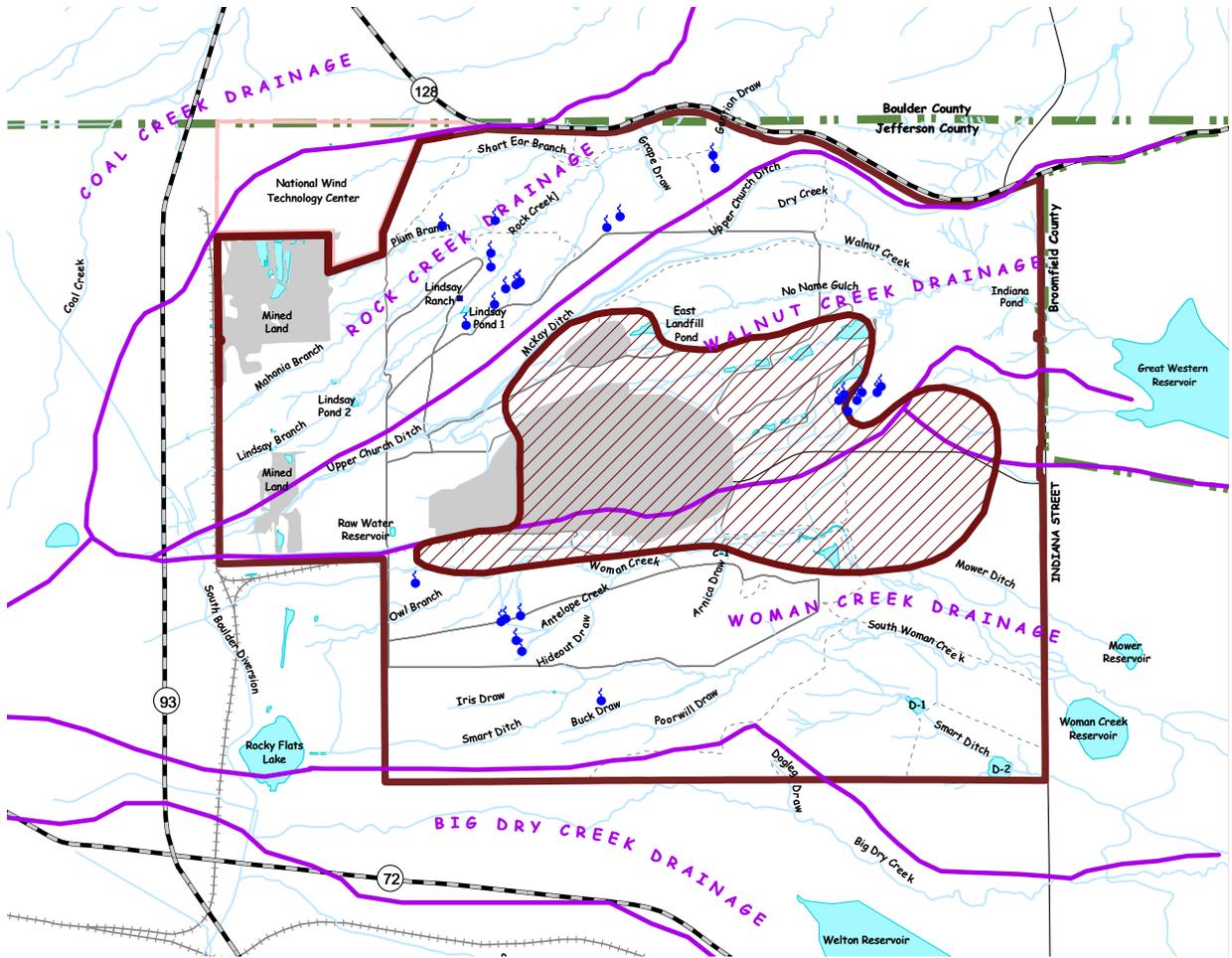
The lower aquitard is composed of the deeper claystones and siltstones of the Laramie and Arapahoe Formations. Combined, these formations combined are up to 800 feet thick below Rocky Flats. Recharge of the lower aquitard occurs from downward flow through the upper aquifer, or directly through precipitation in areas where the bedrock is exposed. Beneath the aquitard lies the regional Laramie-Fox Hills aquifer. It is composed of the lower sandstone unit of the Laramie Formation and the Fox Hills Sandstone and is confined by the overlying aquitard. Ground water levels in the bedrock aquifers are generally greater than 100 feet (DOE 1997).

Several portions of the upper alluvial aquifer east and northeast of the Industrial Area are known or suspected of being contaminated with radionuclides, volatile organic compounds, and metals. The aquitard is less contaminated than the upper alluvial aquifer. No contaminant plumes have been identified in the aquitard. The Laramie-Fox Hills aquifer beneath the site is unlikely to be contaminated (IATTF 1998).



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge Jefferson County, CO



Water Resources

-  Pond
-  Spring
-  Watershed Boundary
-  Stream or Ditch
-  DOE Retained Area (Subject to Change)

0 0.5 1 Mile

November 2004



Figure 7. Water Resources

FUTURE HYDROLOGICAL CONDITIONS

During site closure, DOE will remove the buildings, pavement and some of the subsurface utilities (to a depth of 3 feet) from the Industrial Area and grade and revegetate the area. Subsurface utilities below 3 feet deep will be assessed individually and may be left in place. Landfill areas will be covered and also will be regraded. These changes will affect the surface and ground water hydrology of the site. The following changes that will alter the hydrology of the Rocky Flats site are expected to occur (Kaiser-Hill 2002b):

- No more water will be imported to the site
- Two channels in the Industrial Area will route water to the A- and B-series ponds
- Treatment plant discharge to pond B-3 will be discontinued
- The upper reach of the South Interceptor Ditch will be removed
- Subsurface drains in the Industrial Area will be removed down to 3 feet
- Subsurface utilities within 3 feet of surface will be removed and the area will be backfilled with Rocky Flats Alluvium, changing the hydraulic conductivity of the subsurface in the Industrial Area
- Pavement and buildings will be removed in the Industrial Area (some basement slabs and walls will be left in place)
- The Industrial Area and landfill areas will be regraded to match adjacent topography and the sites will be vegetated

Expected changes in streamflow in Walnut and Woman creeks are discussed in the following sections. Flow in Rock Creek will not be affected. These changes will occur during site cleanup and closure before Refuge establishment. Any potential impacts from these changes will occur while the site is under the DOE's jurisdiction and are outside of the scope of this CCP/EIS.

Walnut Creek

Walnut Creek flows will change due to the elimination of waste water treatment plant discharge to the creek, the removal of impervious areas in the Industrial Area, and the elimination of storm water drain discharges in the

Industrial Area. Terminal pond (A-4 and B-5) discharges will decrease and Walnut Creek flows will be dominated by pond discharge operations and any pond routing or structural modifications. South Walnut Creek east of the Industrial Area is estimated to lose 90% of its annual flow (Kaiser-Hill 2002b).

Woman Creek

Changes in the flow of Woman Creek will be insignificant, except for the area south of the Original Landfill where flows may decrease due to the possible use of covers and slurry walls at the landfill site. Drainage to the South Interceptor Ditch and baseflow within the ditch will decrease because storm water flows from the Industrial Area will be significantly reduced. Changes in ditch flows, however, are not likely to affect Woman Creek flows because water from the ditch is detained in pond C-2 and the ditch supplies less than 10% of the flow of Woman Creek at the east boundary.

3.4. VEGETATION COMMUNITIES

A diverse mosaic of vegetation communities is found at Rocky Flats (Table 3). Two of these vegetation communities, the xeric tallgrass grassland and the tall upland shrubland, are considered to be rare in the region. Other significant vegetation communities include the riparian woodland, riparian shrubland, wetlands, mesic mixed grassland, xeric needle and thread grassland, reclaimed mixed grassland and ponderosa pine woodland (Figure 8).

Vegetation communities at Rocky Flats have been grouped into Resource Management Zones. These zones generalize the Refuge into three categories with similar wildlife habitat attributes and management requirements. The three management zones are Xeric Tallgrass Grassland, Wetlands and Riparian Corridors, and Mixed Prairie Grasslands.

XERIC TALLGRASS GRASSLAND MANAGEMENT ZONE

Xeric Tallgrass Grassland

This rare plant community is found on the rocky plains in the western portions of the site, extending eastward along several finger-like ridgelines. Covering 1,568 acres, it contains several different plant associations that include combinations of big bluestem, little bluestem, mountain muhly, sun sedge, Fendler's sandwort and Porter's aster. Other tallgrass prairie species include Indian-grass, prairie dropseed, switchgrass, and needle-and-thread grass. Species richness is high; 285 species have been recorded within the xeric tallgrass community at Rocky Flats, of which about 80% are native.

Table 3. Vegetation Communities at Rocky Flats

Vegetation Community	Acres	Vegetation Community	Acres
<i>Grasslands</i>		<i>Woodlands</i>	
Xeric Tallgrass Grassland	1,568	Riparian Woodland	28
Mesic Mixed Grassland	2,199	Ponderosa Pine Woodland	9
Xeric Needle and Thread Grassland	187	<i>Wetlands</i>	
Reclaimed Mixed Grassland	640	Tall Marsh Wetland	31
Short Grassland	10	Short Marsh Wetland	121
<i>Shrublands</i>		Wet Meadow	254
Tall Upland Shrubland	34	Open Water/Mudflats	51
Riparian Shrubland	41	<i>Other</i>	
Other Shrubland	70	Disturbed and Developed Areas	997
<i>Total</i>			6,240

Differences in species composition are attributable to annual variations in climate and precipitation (Kaiser-Hill 2002c).

The xeric tallgrass grassland is found primarily on Flatirons and Nederland soils and is believed to be a relict once connected to the tallgrass prairie hundreds of miles to the east (Nelson 2003; Essington et al. 1996).

The Colorado Natural Heritage Program (CNHP) has found that much of the xeric tallgrass grasslands along the Colorado Front Range has been disturbed by urban development and agricultural conversion over the last century. In addition, aggressive weed species such as cheatgrass, Japanese brome and diffuse knapweed have degraded many areas of this community throughout the region (Essington et al. 1996). The CNHP believes that the xeric tallgrass grassland community exists in fewer than 20 places globally and that Rocky Flats has the largest example of this community remaining in Colorado and perhaps North America. The CNHP ranks this community as imperiled within the state (Essington et al. 1996).

The xeric tallgrass grassland community is comprised of several sub-communities (Nelson 2003). One of these sub-communities was identified by ESCO during a five-year evaluation of bluestem-dominated grasslands in the Rocky Flats area. This study found that the major distinguishing feature of what ESCO calls the rare “Rocky Flats Bluestem Grassland” community is the abundance of big bluestem with little bluestem, mountain muhly and Porter’s aster. While big and little bluestem are characteristic of Midwestern tallgrass prairies, mountain muhly and Porter’s aster are characteristic of mountain environments. This unusual combination of mountain and plains grassland species in a consistent and recurring pattern across the Rocky Flats alluvial surface, along with evidence of exceptional stability, makes this vegetation community a rare, if not unique, resource (ESCO 2002).

In 2001, high winds deposited several inches of sand on xeric tallgrass grassland areas adjacent to existing gravel mines in the northwest corner of the Refuge. This sand buried most of the native vegetation and was soon colonized by sunflower, a native annual weedy species, as well as noxious weeds such as diffuse knapweed, Russian



Big bluestem within the xeric tallgrass grassland.

thistle and kochia. This area may require ongoing weed management and possible reseeding to re-establish the native vegetative cover (Kaiser-Hill 2002c).

WETLAND AND RIPARIAN CORRIDORS MANAGEMENT ZONE

Riparian Woodland

The riparian woodland community is characterized by a diverse mixture of plains cottonwood, peachleaf willow, Siberian elm and coyote willow, with an understory of various shrubs such as leadplant and snowberry. Covering 28 acres, it is found primarily along the drainage bottoms of Rocky Flats, with the most significant stand occurring in the Rock Creek drainage (Kaiser-Hill 1997; PTI 1997; Essington et al. 1996).

The most significant threat to the riparian woodland community is from exotic species such as Siberian elm, Canada thistle, musk thistle, smooth brome and Kentucky bluegrass. Preservation of this woodland community depends on the preservation of associated streamflow (PTI 1997; Essington et al. 1996).

Riparian Shrubland

Riparian shrubland forms extensive, dense thickets of shrubs along the stream bottoms. This community covers 41 acres throughout the Rocky Flats site. It is dominated by narrowleaf willow, coyote willow, or indigo bush and generally has an understory consisting of leadplant, Baltic rush and various sedges (Kettler et al. 1994; USACE 1994; Kaiser-Hill 1997).

Tall Upland Shrubland

Tall upland shrubland occurs on 34 acres of north-facing slopes above seeps and along streams, primarily within the Rock Creek drainage. The tall upland shrubland consists of a rare association of hawthorn, chokecherry and occasionally wild plum. This shrubland is associated with ground water seeps that form at the contact of the Rocky Flats Alluvium and the underlying, relatively impermeable Arapahoe Formation. The herbaceous understory contains a number of species that are restricted to the cool, shaded microhabitat provided by the canopy. Understory species include Fendler waterleaf, spreading sweetroot, anise root, carrionflower greenbriar, fragile fern, Colorado violet, Rydberg's violet and northern bedstraw. Although the tall upland shrubland represents less than 1% of the total area of Rocky Flats, it contains 55% of the plant species on the site (DOE/Service 2001). This shrubland community is believed to be rare

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Tall upland shrubland occur on slopes above seeps and along streams.

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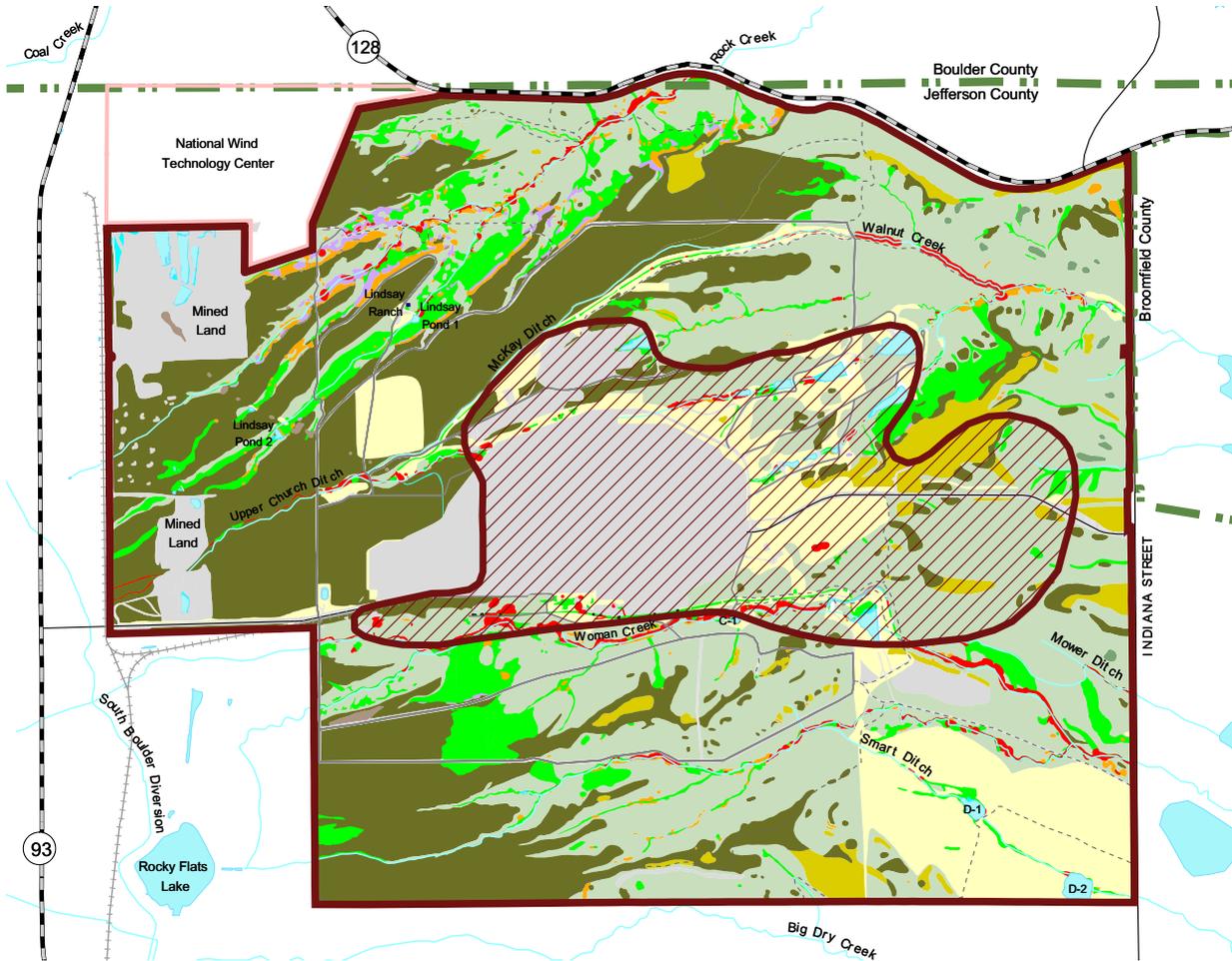
Choke cherry within the tall upland shrub habitat.



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Vegetation

- | | | | |
|---|-----------------------------------|---|---------------------------------------|
|  | Xeric Tallgrass Grassland |  | Other Shrubland |
|  | Xeric Needle and Thread Grassland |  | Riparian Shrubland/Woodland |
|  | Mesic Mixed Grassland |  | Wetland |
|  | Short Grassland |  | Ponderosa Woodland |
|  | Reclaimed Mixed Grassland |  | Disturbed or Developed Area |
|  | Tall Upland Shrubland |  | DOE Retained Area (Subject to Change) |

0 0.5 1 Mile

November 2004



Figure 8. Vegetation

and may not occur anywhere else (DOE/Service 2001; Essington et al. 1996).

Other Shrubland

Other shrubland communities include short upland shrubland and savannah shrubland, covering 70 acres primarily in the Rock Creek drainage. Short upland shrubland is characterized by stands of snowberry and occasional Wood's rose and is often found in association with wet meadows and other wetland or riparian communities. Savannah shrubland occurs in dryer areas where scattered shrubs are interspersed with grasslands. Three-leaf sumac is the predominant shrub in this community (Kaiser-Hill 1997).

Wetland Communities

Wetland communities cover 406 acres of the Rocky Flats site and play an important role in sustaining the diverse vegetation and habitat types found on the site. The most significant wetland complexes at Rocky Flats are the seep-fed wetlands along the hillsides of the Rock Creek drainage and the Antelope Springs complex in the Woman Creek drainage. These wetlands are significant because they have the largest contiguous areas and the most complex plant associations (PTI 1997).

Three wetland types, tall marsh, short marsh and wet meadow, are found at the site. These wetland types occur in streamside areas along the valley floors and near the seeps and springs that occur along many of the hillsides. Each wetland type is described below.

Tall Marsh Wetland

Tall marsh wetlands generally occur along ponds, ditches and in persistently saturated seeps. Covering 31 acres of the site, these wetlands are dominated by cattails, bulrushes and associated forbs such as watercress, showy milkweed, swamp milkweed and Canada thistle (a noxious weed). Antelope Springs in the Woman Creek drainage is the best example of a saturated slope wetland and tall marsh community at Rocky Flats (Figure 8).

Short Marsh Wetland

Covering 121 acres, this wetland type is commonly associated with seasonally inundated or saturated areas, such as hillside seeps. Prevalent species include Nebraska sedge, Baltic rush and spike rush as well as forbs such as watercress and speedwell.

Wet Meadow Wetland

These seasonally saturated wetlands occupy 254 acres on the perimeter of saturated wetlands and contain elements of both the short marsh wetland and upland mixed grassland communities. Prevalent species include redtop, prairie cordgrass and solid stands of Canada bluegrass



Wetlands and open water provide waterfowl habitat.

and western wheatgrass. Other species commonly found in this community include common milkweed, wild iris, Canada thistle, dock and occasionally arnica (Nelson 2003).

MIXED PRAIRIE GRASSLANDS MANAGEMENT ZONE

Mesic Mixed Grassland

The mesic mixed grassland community is the largest vegetation community at Rocky Flats, covering 2,199 acres across the broad ridges, hillsides and valley floors throughout the site and the rolling plains in the eastern portions of Rocky Flats (Figure 8). This community is characterized by western wheatgrass, blue grama, side-oats grama, prairie junegrass, Canada bluegrass, Kentucky bluegrass, green needlegrass and little bluestem. This grassland occurs on clay loam soils having relatively higher soil moisture content than other upland areas. The higher moisture results from subirrigation from the coarse alluvial soils, snow accumulation, and protection from wind (DOE 1997). The mesic mixed grassland is very important to wildlife species including grassland birds, small mammals and larger mammals such as mule deer.

The quality of mesic mixed grassland varies considerably across the site. In the western parts of the site, this community has been degraded by diffuse knapweed, while some areas in the eastern portion of the site have been degraded by weed species such as Japanese brome, alyssum and musk thistle (PTI 1997).

Xeric Needle and Thread Grassland

Several patches of xeric grassland dominated by needle-and-thread grass occur in the eastern half of Rocky Flats. These patches cover 187 acres. Other dominant grass species include New Mexico feathergrass, Canada bluegrass, Kentucky bluegrass and Japanese brome (Nelson 2003). This grassland occurs primarily on the eastern extensions of the Rocky Flats pediment that is characterized by very cobbly sandy loam soils. Although not quite as cobbly, these soils are very similar to the soils that support the xeric tallgrass grassland community (Kaiser-Hill 1997). The largest expanse of needle-and-thread grassland at Rocky Flats occurs along the ridgetop north of the east access road.

Reclaimed Mixed Grassland

Reclaimed mixed grassland covers 640 acres, primarily in the southeastern portion of the site which was formerly cultivated for agriculture. Most of these areas have been re-seeded with a mixture of smooth brome and intermediate wheatgrass, both introduced species. Other common species include crested wheatgrass, sweetclover and field bindweed (Kaiser-Hill 1997).

Short Grassland

This grassland is typified by buffalograss and blue grama, both short grass prairie species. Ten acres of this community are found on the site (Kaiser-Hill 1997).

Ponderosa Pine Woodland

Isolated patches of ponderosa pine woodland cover 9 acres in the uppermost reaches of the Rock Creek and Woman Creek drainages near the western edge of the Refuge. These scattered pines represent an eastward extension of the nearby foothills forests. While much of the understory is similar to the adjacent grassland communities, other associated plants are more likely to occur in foothills environments (DOE 1997).

Disturbed and Developed Areas

Disturbed and developed areas consist of existing or former facilities associated with the previous use of the Rocky Flats site. They include roads, landfills, dams and other facilities. They also include former facilities that have been revegetated with native and introduced grass species.

NOXIOUS WEEDS

Noxious weeds are exotic, aggressive plants that invade native habitat and cause adverse economic or environmental impacts. Since 1990, Rocky Flats has



Dalmatian toadflax, a noxious weed, has moved into large areas of the Refuge.

experienced a large increase in noxious weeds (DOE 1997). At Rocky Flats, the noxious weed species with the greatest potential to degrade the native plant communities and that are the most difficult to control include diffuse knapweed, musk thistle, Dalmatian toadflax, and Canada thistle. Other increasingly problematic weeds are downy brome (cheatgrass), field bindweed, and jointed goatgrass (Lane 2004). Diffuse knapweed, an aggressive tumbleweed, is currently given highest control priority. Canada thistle is common in and around most of the wetlands, musk thistle is found across mesic grasslands, and Dalmatian toadflax is common in xeric grasslands and other areas (Figure 9). Sulfur cinquefoil is a new invader to the area that may have already established populations on the Refuge (Lane 2004).

Prioritized noxious weed lists and selected weed control measures are found in the 2002 Annual Vegetation Management Plan. The three most abundant noxious weeds identified in 2001 mapping were: Dalmatian toadflax infesting 2,504 acres; diffuse knapweed infesting 1,919 acres; and musk thistle infesting 869 acres (Table 4) (Kaiser-Hill 2002a; DOE/Service 2001).

RARE PLANTS

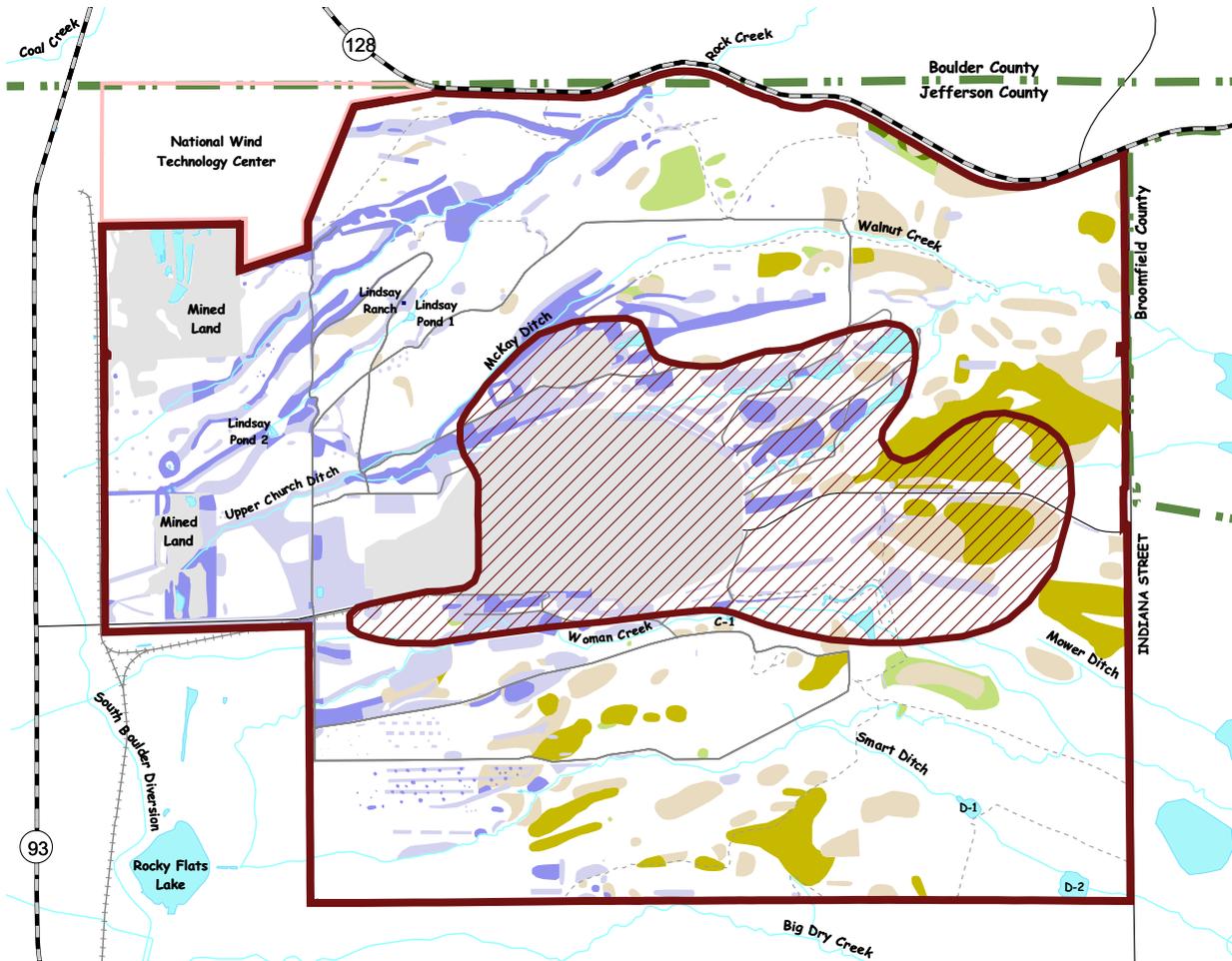
No federally listed plant species, such as the Ute ladies'-tresses orchid or Colorado butterfly plant, are known to occur at Rocky Flats. Aside from the rare xeric tallgrass prairie and tall upland shrubland communities, Rocky Flats also supports populations of four rare plant species that are listed as rare or imperiled by the CNHP. These species are the mountain-loving sedge, forktip three-awn, carrionflower greenbriar, and dwarf wild indigo. Forktip three-awn primarily occurs in previously disturbed sites near the western edge of the current Industrial Area. The other three species occur primarily along the pediment slopes in the Rock Creek drainage (Kaiser-Hill 2002c).



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Noxious Weeds

Knapweed

- High Density
- Medium Density

Dalmatian Toadflax

- High Density
- Medium Density

Musk Thistle

- High Density
- Medium Density

- DOE Retained Area (Subject to Change)

0 0.5 1 Mile

November 2004



Note: Low or scattered density weed populations are not shown.

Figure 9. Noxious Weeds

Table 4. Major Noxious Weeds at Rocky Flats

Weed Name	High Density (ac.)	Medium Density (ac.)	Low Density (ac.)	Scattered Density (ac.)	Total Infested Area (ac.)
Dalmatian toadflax	341	389	1,240	537	1,207
Diffuse knapweed	380	525	377	377	1,956
Musk thistle	9	84	430	346	869

FIRE HISTORY

Historical documentation indicates that the grasslands in the Rocky Flats area have been subjected to lightning and human-caused fires for thousands of years (DOE 1999). These fires likely played a major role in promoting native vegetation growth and diversity (DOE 1999). Since 1972, wildfires have not been allowed to burn and only one controlled burn has been conducted in the grasslands at Rocky Flats. As a result, a fuel load of dead vegetation has been building up in the grasslands of Rocky Flats for at least 30 years. This buildup of dead vegetation has contributed to an invasion of noxious weeds on the site, particularly in the last 10 years (DOE 1999).

Seven wildfires have been documented on the site since 1993 (Figure 10). In 1994, the Spring Grassland fire burned 70 acres between Highway 128 on the north boundary and the north access road. In 1996, the 104-acre Labor Day Grassland Fire burned much of an area penned in by access roads in the southern portion of the site. In February 2002, a 27-acre fire burned through portions of the Rock Creek drainage on the south side of Highway 128. A 48-acre prescribed burn was conducted on April 6, 2000. The prescribed burn took place in the same area as the 1996 wildfire (Kaiser-Hill 2002).

3.5. WILDLIFE RESOURCES

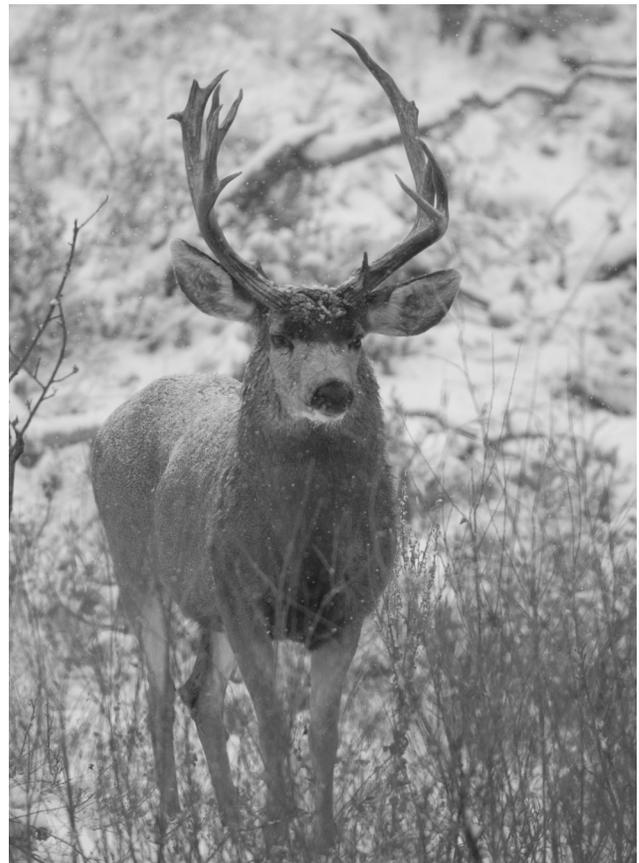
Many areas of the Rocky Flats site have remained relatively undisturbed for the last 30 to 50 years, allowing them to retain diverse habitat and associated wildlife. These wildlife communities are supported by the regional network of protected open space that surrounds the site on three sides, buffering wildlife habitat from the surrounding urban development.

MAMMALS

One of the most abundant and conspicuous mammal species at Rocky Flats is the mule deer. A resident herd of about 160 individuals inhabits the site. While mule deer distribution varies by the season, they appear to have a general preference for the following areas (shown in Figure 11):

- The open grasslands of the upper Rock Creek drainage
- The shrublands of the lower Rock Creek drainage
- The grasslands of the upper Walnut Creek drainage
- The hillsides above lower Walnut Creek
- Riparian bottomlands around Woman Creek and Antelope Springs
- The grasslands below the pediment in the Smart Ditch drainage

© Mauro



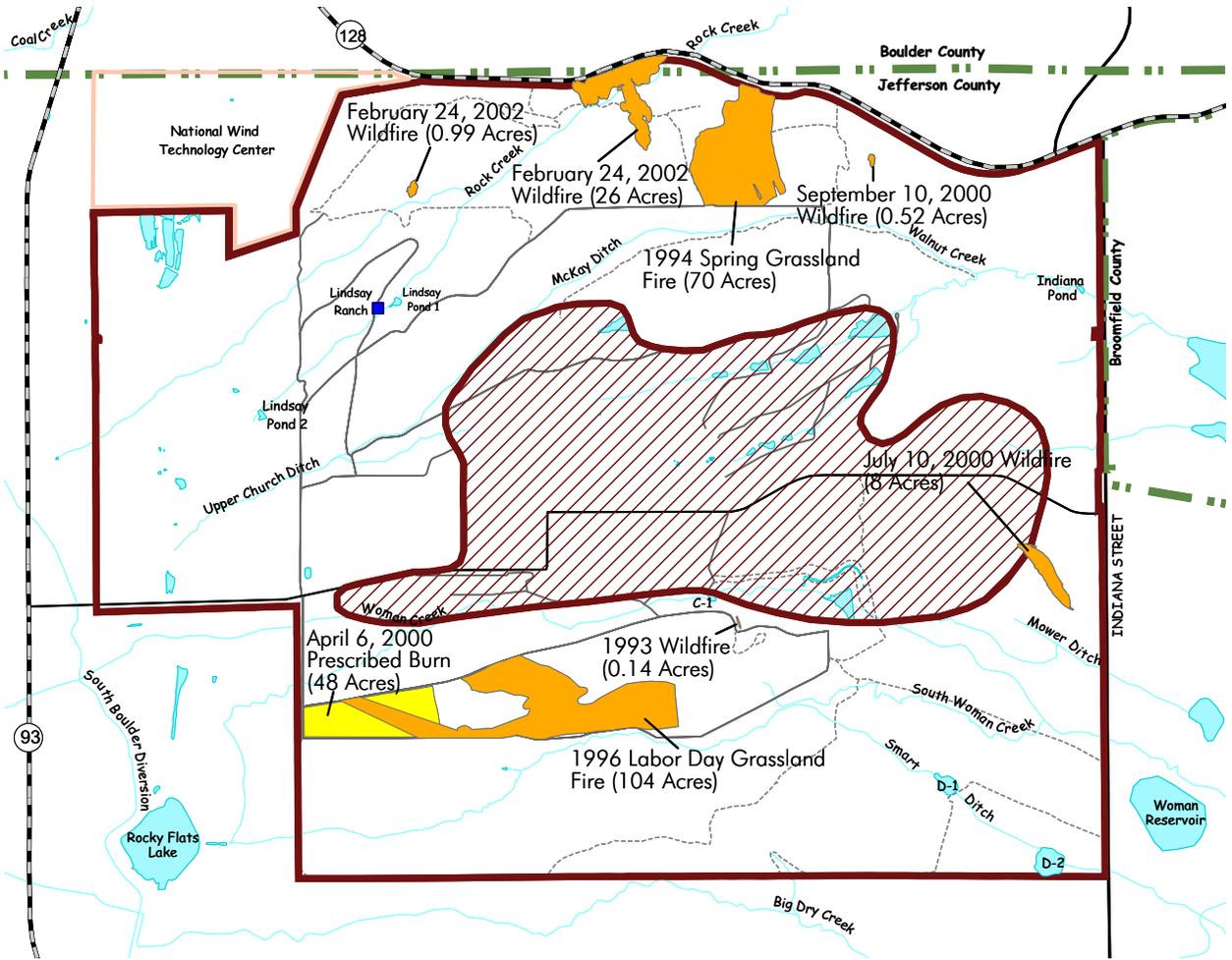
Mule deer is one of the most abundant and conspicuous mammal species on the Refuge.



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Recent Fire History

- Wildfire
- Prescribed Burn
- DOE Retained Area (Subject to Change)

Note: Based on known fires between 1993 and 2002.



Figure 10. Recent Fire History

In the spring, mule deer exhibit an affinity for woody habitat and secondarily for grasslands. In the summer, deer use is more generally divided among different habitats. In the fall, mule deer primarily use woody habitats, with grasslands also being important. In the winter, mule deer are commonly observed in grasslands and tall upland shrublands (Kaiser-Hill 2001).

Whitetail deer have become more common at the site and are often observed in company with mule deer. The Refuge is in CDOW's Game Management Unit (GMU) #38 and is adjacent to GMU#29, which collectively make up the Boulder deer herd. American elk visit Rocky Flats, but are not resident (DOE 1997). In 2003, 11 cow elk were observed with nine calves in the Rock Creek drainage (Wedermeyer 2003).

Other mammals observed at Rocky Flats include desert cottontail, black-tailed jackrabbits, muskrat and porcupine. Muskrats generally occur in and around the ponds, while porcupine populations are limited to the shrubland and ponderosa pine habitats in the upper Rock Creek drainage (DOE 1997). Black-tailed prairie dogs inhabit the Rocky Flats site in limited numbers (Figure 11) and are discussed in greater detail below. Numerous small mammal species, such as mice and voles, inhabit all vegetation community types at Rocky Flats. Preble's meadow jumping mouse, a threatened species, is described below under *Federal Threatened and Endangered Species*.

Two commonly observed carnivore species at Rocky Flats are the coyote, which occurs throughout the site, and raccoon, which is often seen in the Industrial Area and near watercourses. Typically at Rocky Flats, three to six coyote dens support an estimated 14 to 16 individuals at any given time (Kaiser-Hill 2001). Twenty-two coyote dens used between 1991 and 2002 have been identified at Rocky

Flats. The coyote dens generally occur on hillsides near watercourses. Six dens were active in 2002. One active den was located in the upper Rock Creek drainage, two were located on the slopes above either side of Walnut Creek near Indiana Street, one was near the D-1 pond, one near Antelope Springs and one in the upper South Woman Creek drainage (Nelson 2003). Other carnivores include striped skunk, gray fox, red fox, long-tailed weasel, American badger and mink. Black bears and mountain lion tracks are occasionally seen at the site (Kaiser-Hill 2000, 2001).

Black-Tailed Prairie Dog

The black-tailed prairie dog is a controversial species on the forefront of conservation in the U.S. (CDOW 2003). The prairie dog is often described and disputed as a "keystone species" because it has a large effect on community structure or ecosystem function (Power et al. 1996; CDOW 2003).

In August 2004, the Service removed the prairie dog from consideration as a candidate species under the Endangered Species Act (Service 2004b). Candidate species are plants and animals for which the Service has sufficient information on their biological status to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species receive no statutory protection under the ESA (Service 2002).

Regardless of its status as a keystone species, prairie dogs play an important role in grassland ecosystems. Several studies found that prairie dogs alter plant species composition and structure. Typically, areas occupied by prairie dogs have greater cover and abundance of perennial grasses and annual forbs compared to non-



The coyote is a commonly observed carnivore species on the Refuge.

occupied sites (Whicker and Detling 1988; Witmer et al. 2002). Prairie dogs can contribute to overall landscape heterogeneity, affect nutrient cycling, and provide nest sites and shelter for wildlife such as rattlesnakes and burrowing owls (Whicker and Detling 1988). Prairie dogs can also denude the surface by clipping above-ground vegetation and contributing to exposed bare ground by digging up roots (Kuford 1958; Smith 1967). Prairie dogs are susceptible to and can spread Sylvatic plague.

Three black-tailed prairie dog colonies, comprising 112.8 acres of grasslands, were mapped at Rocky Flats in 2000. Since 2000, plague outbreaks have reduced the active colonies to an area of 10 acres (Stone 2003). These colonies are shown on Figure 11.

The Rocky Flats site contains about 2,460 acres of potential prairie dog habitat (Figure 12). Delineations of potential prairie dog habitat are based on soil, vegetation, and slope attributes that prairie dogs are known to prefer (Clippinger 1989):

- 30 to 90% herbaceous cover
- 2- to 10-inch vegetation height
- Slopes less than 20% (prefer less than 10%)
- Rock-free soils with less than 70% sand content

BIRDS

The most commonly observed raptors at Rocky Flats are red-tailed hawk, great horned owl and American kestrel. Other less abundant raptors include Swainson's hawk, ferruginous hawk, prairie falcon and long-eared owls. Most raptor species use riparian woodlands or tall upland shrublands for nesting and roosting habitat and forage in all habitats at the site. Raptor nest sites observed between 1991 and 1998 are shown on Figure 11.

Over 185 species of migratory birds have been recorded at Rocky Flats, of which about 75 are believed to breed at the site. Of the estimated 100 neotropical migrants (migratory birds that breed north of the U.S./Mexico border and winter south of the border (PTI 1997)) at Rocky Flats, about 45 are confirmed or suspected breeders at the site.

Commonly observed bird species in wetland habitats include the red-winged blackbird, song sparrow, common yellowthroat and common snipe. Common birds in riparian woodland areas include the northern oriole, American goldfinch, house finch and yellow warbler. The tall upland shrubland habitat is inhabited by the song sparrow, rufus-sided towhee, black-billed magpie, yellow-breasted chat and black-capped chickadee. Common



Snipe.



Western meadowlark.



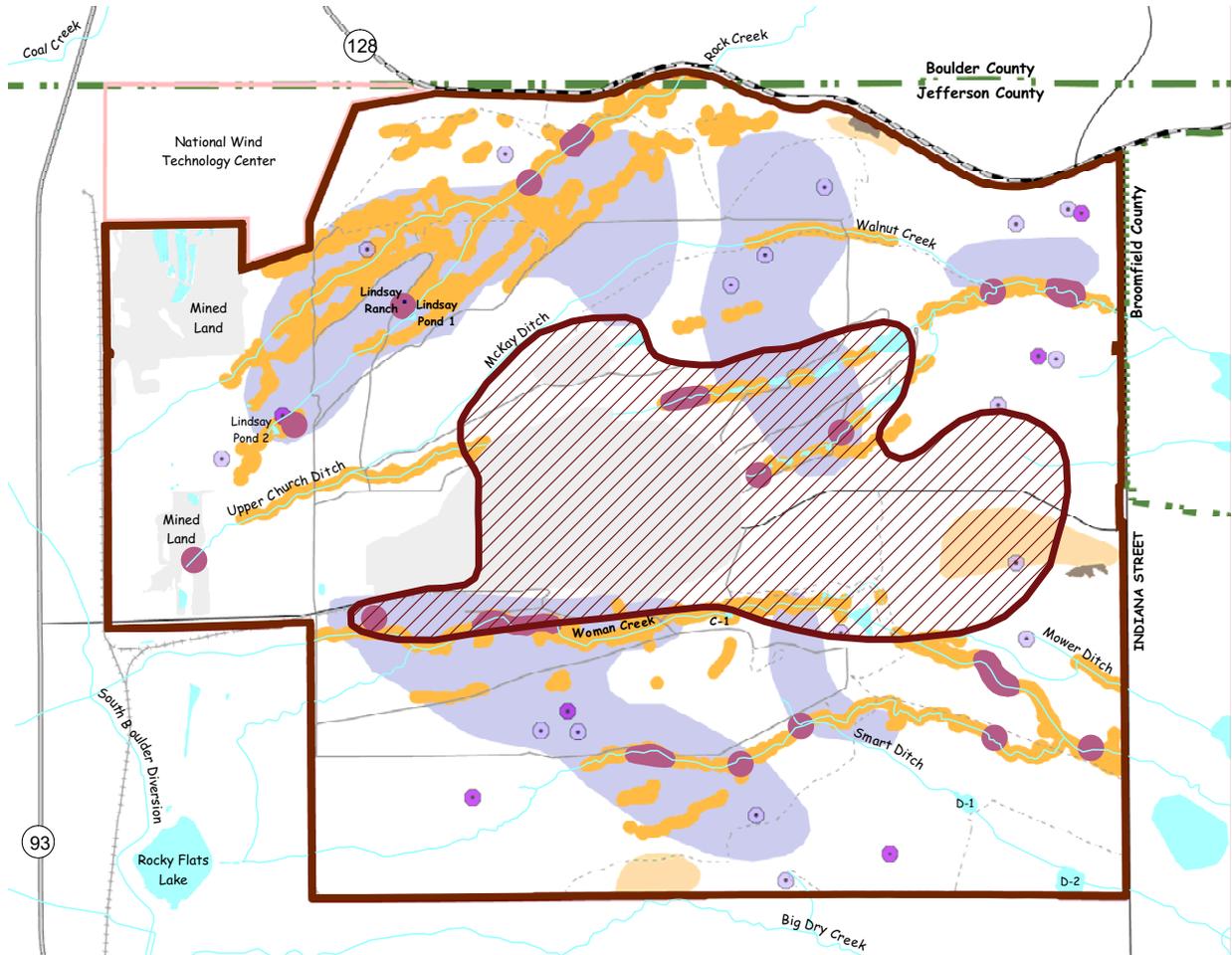
Swainson's hawk.



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Wildlife Resources

- Preble's Meadow Jumping Mouse Protection Area** (DOE designation)
- Observed Raptor Nest Site** (1991-1998)
- Mule Deer Concentration Area** (1997-2001)
- Black-Tailed Prairie Dog Colony** (CDOW 2000)
- Black-Tailed Prairie Dog Colony** (Active in 2003)
- Coyote Den** (Active in 2002)
- Coyote Den** (1991-2001)
- DOE Retained Area** (Subject to Change)

0 0.5 1 Mile

November 2004



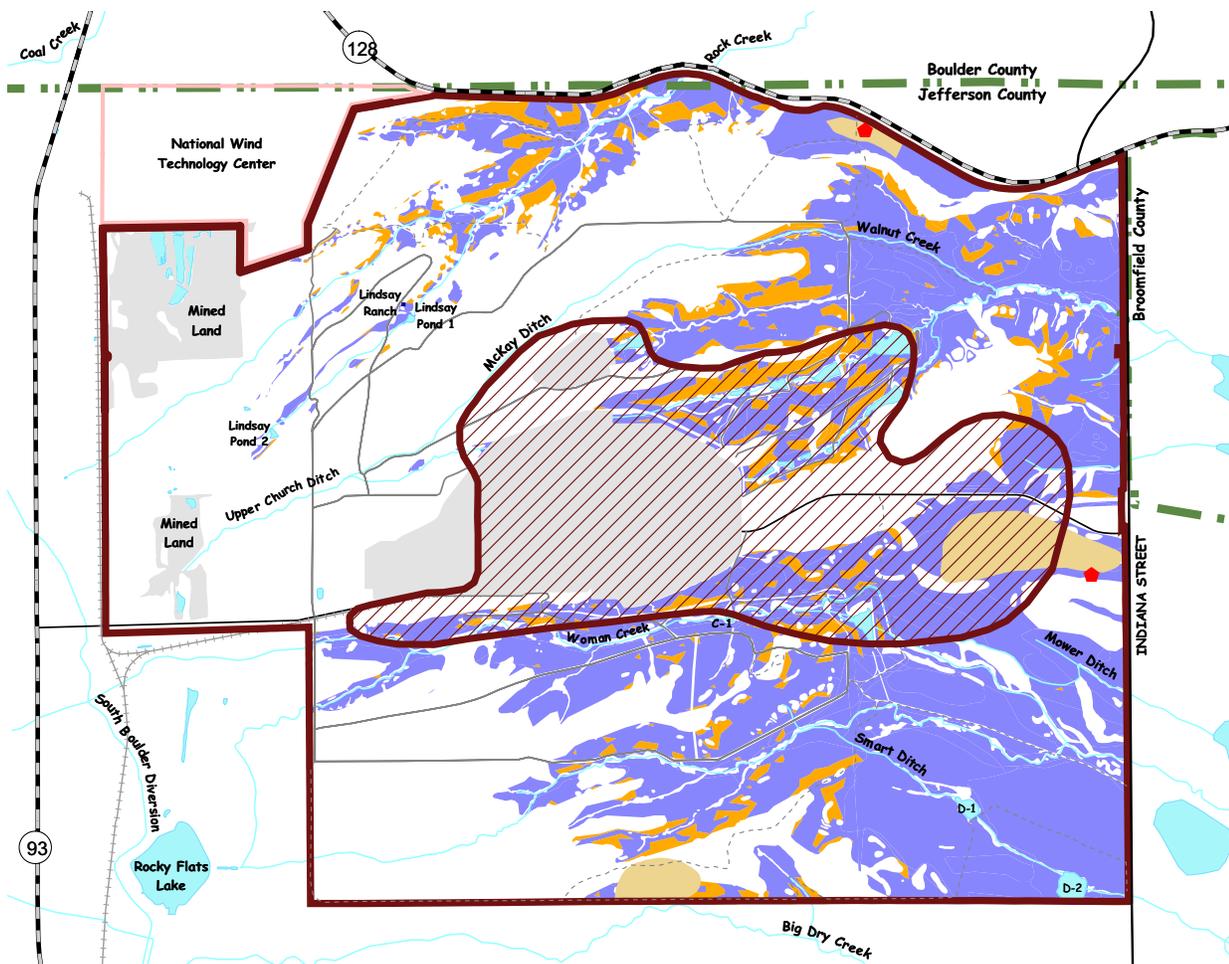
Figure 11. Wildlife Resources



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Potential Prairie Dog Habitat

- Primary Habitat (Slope less than 10%)
- Secondary Habitat (Slope between 10 and 20%)
- Existing Prairie Dog Colony (CDOW 2000)
- Existing Prairie Dog Colony (Active in 2003)
- Unsuitable Habitat
- DOE Retained Area (Subject to Change)

0 0.5 1 Mile
November 2004



NOTE: Potential prairie dog habitat was defined by preferred soil type and vegetation communities. Historically, prairie dogs have been known to colonize non-habitat areas.

Figure 12. Potential Prairie Dog Habitat

grassland birds include the vesper sparrow, western meadowlark, grasshopper sparrow and mourning dove (DOE 1997). The reclaimed mixed grassland provides habitat for birds such as the western meadowlark and vesper sparrow (PTI 1997).

Several waterfowl species use the ponds at Rocky Flats. The most common waterfowl are mallards and Canada geese (DOE 1997). Great blue herons feed in mudflats and short marshlands, while double-crested cormorants are common summer residents.

Plains Sharp-tailed Grouse

The Rocky Flats site and surrounding areas contain potential habitat for the plains sharp-tailed grouse. The grouse is extirpated from the area and is not known to occur at Rocky Flats prior to 2003 (DOE 1997). The City of Boulder Open Space and Mountain Parks Department, along with Boulder County Parks and Open Space and the CDOW, have initiated a sharp-tailed grouse reintroduction program on joint City-County owned open space land north of Rocky Flats. About 25 individuals were transplanted to the open space area in 2003, while several more are planned to be reintroduced in the future (Brennan 2003). Several of the transplanted individuals are believed to have used Rocky Flats' grasslands (Wedermeyer 2003).

According to the CDOW Plains Sharp-tailed Grouse Recovery Plan (CDOW 1992), grouse use different habitats seasonally with extensive use of grassland and grassland-low shrub transition zones. Riparian areas and wooded draws are important winter habitat. Reasons for the decline of sharp-tailed grouse include land cultivation, livestock grazing and fire control. Other threats to grouse include urban development and alteration of habitat by weed infestation (Gershman 1992).

REPTILES AND AMPHIBIANS

In general, reptiles and amphibians are found in small numbers at Rocky Flats due to an absence of suitable habitat. The most common reptiles are the bullsnake, yellow-bellied racer, plains garter snake and prairie rattlesnake. All of these species occur in the open grassland habitats, although the plains garter snake typically lives close to water bodies. Other reptiles include the short-horned lizard in open grasslands, the eastern fence lizard in rocky shrublands, and the western painted turtle in ponds (DOE 1997).

The most abundant amphibian at Rocky Flats is the boreal chorus frog, which breeds in water bodies throughout the site. The northern leopard frog is less common and is found only in permanent water bodies such as ponds



The western painted turtle is found in ponds on the Refuge.



Northern red-belly dace were introduced into the Lindsay Pond in 2003.

(DOE 1997). The boreal chorus frog is relatively abundant in the streams and wetlands at Rocky Flats (Kaiser-Hill 2000). Other amphibians include the bullfrog, Woodhouse's toad, the plains spadefoot and the tiger salamander (DOE 1997).

AQUATIC SPECIES

Aquatic species at Rocky Flats are limited in drainages and ditches by low and irregular flows. The most common aquatic macroinvertebrates (aquatic insects) are the larvae of the blackfly, midge and mayfly (DOE 1997). Other species include caddisflies, crane flies, damselfly larvae, as well as snails and amphipods. Large macroinvertebrates such as crayfish and snails are potentially important prey for other fish, waterfowl and mammal species.

Each of the three primary drainages at Rocky Flats contains a variety of pond and stream habitats, varying amounts of habitat modification, and seasonal water flows. The Walnut Creek drainage has been highly modified as part of the development of Rocky Flats. The upper section

of the drainage was filled and the lower section modified into a series of small reservoirs that can retain water released from the Industrial Area. A variety of non-native fish species (rainbow trout, carp, bass) were introduced into the Walnut Creek reservoirs. Although all introductions did not establish reproducing fish populations, carp, goldfish and fathead minnows are present in these reservoirs. Woman Creek retains a significant amount of stream habitat and holds the majority of Rocky Flats fish species. Native fish species that reproduce within Woman Creek include white suckers, fathead minnows, green sunfish, stonerollers and creek chubs. Two non-native fish species, golden shiners and largemouth bass, also are found in the drainage.

According to the Colorado Vertebrate Ranking System (CDOW 2001), the Iowa darter and common shiner rank high enough to merit re-evaluation and the redbelly dace is potentially imperiled. Threats to these species include extirpation through habitat degradation (e.g., siltation, pollution and/or bank destabilization, the effects of urbanization and predation by introduced non-native fish.

Native Fish Restoration

The 2001 Rock Creek Reserve Integrated Natural Resources Management Plan (DOE/Service 2001) called for the establishment of native fish populations within the

Rock Creek drainage. Rock Creek supports favorable habitat for native fish such as the common shiner and northern redbelly dace. Monitoring during the drought of 2002 demonstrated that Rock Creek flows remain consistent in dry years.

Native fish restoration efforts began in 2002, when largemouth bass and other non-native fish were removed from the Lindsay Ponds with rotenone (a piscicide). In June and August 2003, common shiner and northern redbelly dace were introduced to the Rock Creek drainage, with the intention of establishing a new population of these rare and declining native fish species (Rosenlund 2003).

WILDLIFE SPECIES OF SPECIAL CONCERN

In addition to federally listed wildlife species described below in the *Federal Threatened and Endangered Species* section, the Rocky Flats site has been known to support numerous species with special status designated by CDOW because of their rare or imperiled status (Table 5). Western burrowing owl has been observed in grasslands and the ferruginous hawk has been observed in riparian woodlands and open grasslands (PTI 1997; DOE 1997).



Mule deer are one of several wildlife species that regularly move between the Refuge and adjoining lands.

Table 5. Wildlife Species of State Special Concern at Rocky Flats

Common Name	Scientific Name	Status	Occurrence at Rocky Flats
Plains sharp-tailed grouse	<i>Tympanuchus phasianellus jamesii</i>	State endangered	Observed infrequently
Western burrowing owl	<i>Athene cunicularia hypugea</i>	State threatened	Known resident or regular visitor
Northern leopard frog	<i>Rana pipiens</i>	State special concern	Known resident
American peregrine falcon	<i>Falco peregrinus</i>	State special concern	Regular visitor
Common garter snake	<i>Thamnophis sirtalis</i>	State special concern	Observed infrequently
Ferruginous hawk	<i>Buteo regalis</i>	State special concern	Known resident or regular visitor
Greater sandhill crane	<i>Grus canadensis tibida</i>	State special concern	Observed infrequently
Long-billed curlew	<i>Numenius americanus</i>	State special concern	Observed infrequently
Mountain plover	<i>Charadrius montanus</i>	State special concern	Observed infrequently

WILDLIFE CORRIDORS

While Rocky Flats is surrounded on three sides by major roads, many wildlife species move between the site and habitat in surrounding areas. However, movement corridors between the Refuge and adjacent lands are not well defined. Movement of most terrestrial species occurs along broad areas where disturbance and barriers to movement are minimized (Howard 2003; Wedermyer 2003).

On the west side of the Refuge, east-west movement across Highway 93 can be impeded by the South Boulder Diversion Canal and mining areas on the western edge of Rocky Flats. Given these barriers, the most likely areas for wildlife movement are the open lands in the upper Rock Creek area and the upper Woman Creek area between the mining areas (on land owned by the State of Colorado) and the west access road.

Prairie dogs cross Highway 128 in the northwest corner of the Refuge, to access other colonies on adjacent open space lands. Otherwise, north-south prairie dog movement across Highway 128 does not likely occur at any specific location. The Rock Creek drainage along the highway is impeded by the highway embankment and the culverts for the creek are too small for use by larger species of mammals. Likewise, the east side of the Refuge is open in most places and wildlife moves across a broad front, although the Walnut Creek and Woman Creek drainages provide natural corridors for east-west movement for small and mid-size mammals across Indiana Street.

Most deer on Rocky Flats do not migrate offsite and elk periodically descend from the foothills and enter Rocky Flats from the west. In the spring of 2003, several cow elk used the Rock Creek drainage as a calving ground (Wedermyer 2003). The behavior of other species is less known.

POTENTIAL CONTAMINATION ISSUES

Extensive studies have been conducted on the potential effects of contamination on wildlife and vegetation at Rocky Flats since the mid 1970s, mostly by Colorado State University. These studies include two deer studies as well as studies of small mammals, arthropods (insects), snakes, and cattle. Samples were taken of various species for the Draft Ecological Risk Assessments for Walnut Creek and Woman Creek Watersheds at Rocky Flats Environmental Technology Site (September 1995) and included samples consisting

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The Refuge contains about 2,460 acres of potential prairie dog habitat.



Preble's meadow jumping mouse.

of small mammals, insects, benthic invertebrates, and fish. Additional studies were done by CSU on vegetation uptake of plutonium, in both terrestrial and aquatic species. Studies conducted at other DOE facilities can be used to compare to Rocky Flats. See Section 1.5 - *Issues Outside the Scope of The CCP and EIS*, and Section 3.2 - *Geology and Soils* for more information about residual soil contamination at Rocky Flats.

Tissue samples, including edible tissues of deer harvested at Rocky Flats in 2002, have been analyzed for contaminants. The results of these analyses indicate radionuclide tissue levels of non-detectable quantities or at method detection limits. In all cases the edible tissue levels are below the 1×10^{-6} risk-based level for consumption of Rocky Flats deer tissue.

3.6. FEDERAL THREATENED AND ENDANGERED SPECIES

Rocky Flats supports two wildlife species listed as threatened or endangered under the Endangered Species Act (ESA). The Preble's meadow jumping mouse and the bald eagle are listed as threatened.

As discussed in the preceding *Wildlife* section, the black-tailed prairie dog is no longer listed as a candidate species (Service 2004b).

PREBLE'S MEADOW JUMPING MOUSE

Preble's meadow jumping mouse (Preble's) occurs in every major drainage on the site. Listed as a threatened species in 1998, the mouse occurs in habitat adjacent to

streams and waterways along the Front Range of Colorado and southeastern Wyoming. At Rocky Flats, Preble's also has been found in wetlands and shrubland communities adjacent to the Rock Creek and Woman Creek drainages. Knowledge of the natural history and ecology of the Preble's is limited. An increase in knowledge about the species may change our understanding of their habitat needs and associations. In 2003, the Service designated critical habitat for the Preble's. The critical habitat did not include any of the drainages at Rocky Flats because the site is to become a Refuge (Service 2003).

In February 2005, the Service published a 12-month petition finding on a proposal to delist the Preble's (*Zapus hudsonius preblei*) from the Endangered Species List based on the results of a study by the Denver Museum of Nature and Science regarding the genetic makeup of Preble's (Ramey et al. 2003, 2004).

The Service will make a decision whether to delist within approximately one year of publishing the proposal. This decision will be based upon any new information received regarding combining Preble's with the Bear Lodge Jumping Mouse (*Z.h. campestris*), an evaluation of threats to the combined *Z.h. campestris* entity, and an evaluation of whether the Preble's portion of *Z.h. campestris* qualifies as a Distinct Population Segment requiring protection. Until the review and delisting occur, the Service will continue to manage Preble's as a threatened species in accordance with existing laws and policies.

BALD EAGLE

The bald eagle occasionally forages at Rocky Flats although no nests have been identified. An active nest is located to the east of Rocky Flats near Standley Lake. Eagles feed primarily on fish and waterbirds but also on small mammals and mammal carcasses (DOE/Service 2001). The bald eagle was federally listed as endangered in 1967 and was downlisted to threatened in 1994.

PLANT SPECIES

No federally listed plant species are known to occur at Rocky Flats. While many of the riparian and wetland communities support potential habitat for the Ute ladies'-tresses orchid and Colorado butterfly plant, these species are not known to occur at the site (ESCO 1994). The mosaic of vegetation communities at Rocky Flats contains several rare and sensitive plant communities. These include the xeric tallgrass grassland, tall upland shrubland, riparian shrubland, mountain-loving sedge, forktip three-awn, carrionflower greenbriar, dwarf wild indigo and plains cottonwood riparian woodland

communities. Each of these communities is described in detail in the *Vegetation Communities* section.

3.7. CULTURAL RESOURCES

Cultural resource surveys have identified and recorded 45 cultural sites or artifacts at Rocky Flats (Figure 13). Most of these sites or artifacts are related to Euro-American occupation of the area within the last 120 years. None of the identified cultural resources is recommended as eligible for listing in the National Register of Historic Places.

PREHISTORIC RESOURCES

While various Native American groups occupied the Rocky Flats region prior to 1800, few remains from this period have been found on the site. Cultural resource inventories have identified several isolated finds of prehistoric origin, including stone enclosures and stone cairns (Dames and Moore 1991).

HISTORIC RESOURCES

Numerous sites and artifacts related to agricultural and mining activity at Rocky Flats in the early 20th century have been identified. These include ditches, stock ponds, rock piles, building remains, fencing materials and other farming and ranching-related equipment (Figure 13). Remnants of an apple orchard are near the site of a former stage coach stop in the Woman Creek drainage. An abandoned railroad grade, whose construction began

in 1881 and was never completed, traverses the Refuge.

Many historic sites relate to land uses at Rocky Flats during the early 20th century. During this time, the cattle industry along the Front Range boomed and several families acquired land for pasture in the Rocky Flats area. In most cases, the primary ranch sites were outside of what became the Rocky Flats site, with the exception of the Lindsay Ranch (Dames and Moore 1991).

Lindsay Ranch

The area known as the Lindsay Ranch was originally homesteaded by the Scott family in 1868. The northern part of this area was given to the railroad in 1897 as part of the railroad land grants. Other lands surrounding what became the Lindsay Ranch were homesteaded by various settlers in the 1880s and 1890s. Between the late 1880s and 1916, the Jones family, one of the original homesteaders in the area, had acquired the area that would become the Lindsay Ranch. During this time, many of the original homesteads were being consolidated into larger parcels to provide pasture for cattle (Dames and Moore 1991).

In 1916, almost 700 acres of land in the area were sold to the Ebertharter family, who controlled 1,280 acres along the northern portion of the current Rocky Flats site. In 1941, a 640-acre ranch property was sold to George and Susan Lindsay. The Lindsays resided in Denver and raised cattle on the ranch at Rocky Flats. The Lindsays owned the ranch property at Rocky Flats and a 320-acre ranch parcel at the west end of Leyden Gulch, south of

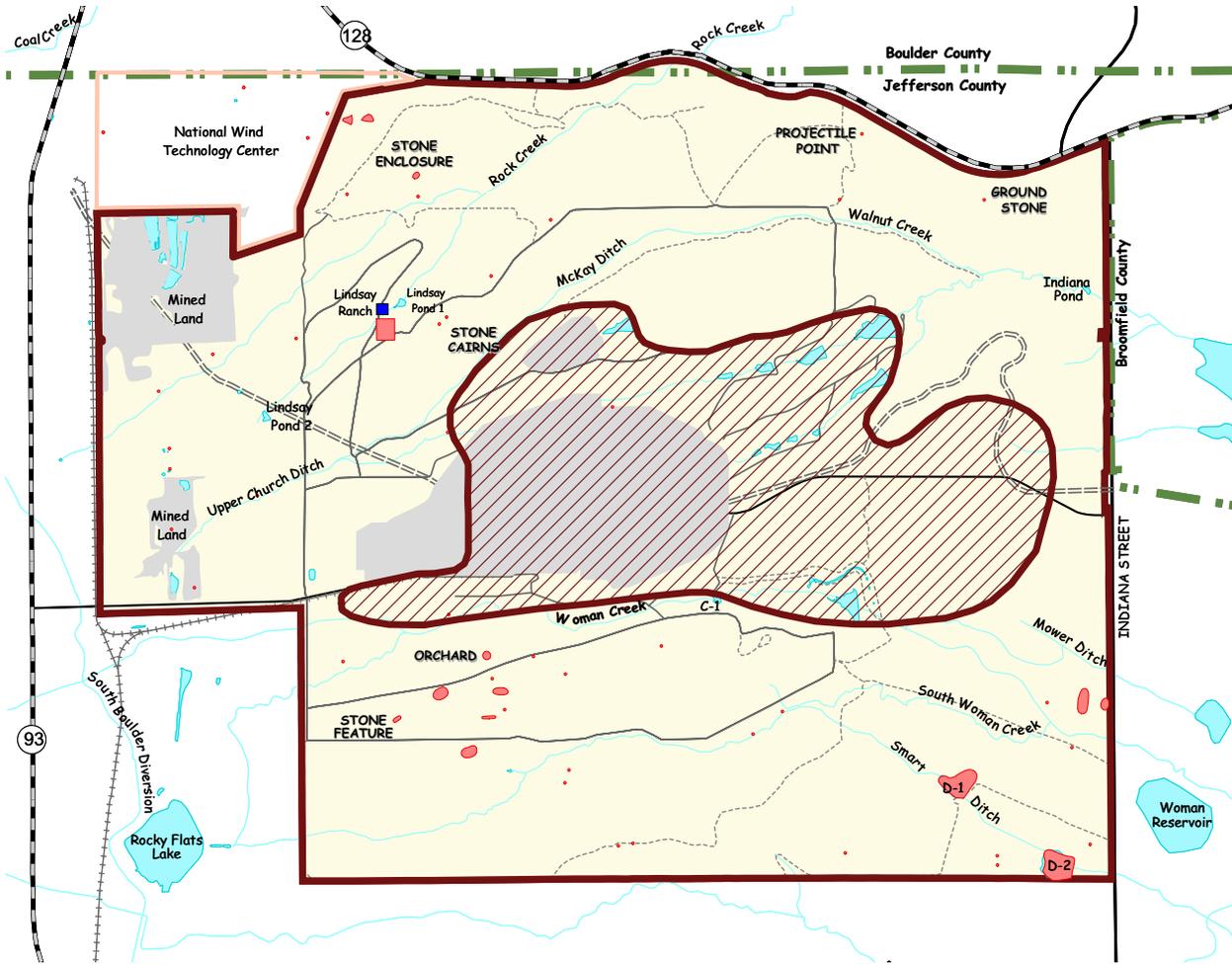


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An apple orchard is the only remaining visible remnant of the stage coach stop along Woman Creek.



US Fish & Wildlife Service Rocky Flats National Wildlife Refuge Jefferson County, CO



Cultural Resources

- Cultural Resource Site
- 1882 Railroad Grade
- DOE Retained Area (Subject to Change)

0 0.5 1 Mile

November 2004



Cultural resource sites include chipped stone, ground stone, projectile points, stone cairns, stone enclosures, stone features, and others.

Figure 13. Cultural Resources

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During the fall of 2003, the Service, in partnership with DOE, stabilized the barn and rebuilt the two wings.

Rocky Flats. The barn was constructed in the mid-1940s, followed by the construction of the house in 1949. The house was occupied by a caretaker until the property was condemned by the U.S. Atomic Energy Commission for the development of the Rocky Flats plant in 1951.

Maintenance of the ranch structures ceased in 1952. During the operation of the Rocky Flats plant, security personnel informally used both the house and barn for target practice. The Lindsay Ranch area now consists of a large barn, a collapsed shed, corral, livestock chute, and a frame house. A blizzard in March 2003 dumped over 3 feet of snow in the area, collapsing the east and west wings of the barn. During the fall of 2003, the Service, in partnership with DOE stabilized the barn to prevent further damage to the structure (Norman 2003). The two wings were essentially rebuilt. Part of the barn roof was repaired. Portions of the concrete foundations were replaced. The windows and doors were boarded to protect the structure from wind and moisture.

The house is in a dilapidated condition, with holes in the roof and walls and an unstable floor, and has not been maintained or stabilized since it was last used in 1951.

Cold War Era

The Rocky Flats site was one of the 13 nuclear weapons production facilities in the United States during the Cold War. Weapons production ended in 1989. The DOE completed an inventory of all buildings on the site and determined 64 facilities within the Industrial Area are very important to regional, national and international history for their role during the Cold War era. The State Historic Preservation Office has determined that these 64 facilities are eligible for listing in the National Register of Historic Places as a historic district (DOE 1997). All of these facilities will be removed prior to site closure and establishment of the Refuge.

3.8. INFRASTRUCTURE, EASEMENTS, AND UTILITIES

TRANSPORTATION

The Rocky Flats site is surrounded on all sides by state highways or a major thoroughfare. Colorado Highway 128 defines most of the site’s northern boundary, while Highway 93 runs parallel to the western boundary about ¼ mile to the west. Less than 1 mile to the south, Highway 72 runs parallel to the site’s southern boundary. Indiana Street defines the site’s eastern boundary. Current access to the site is from Highway 93 or Indiana Street. The existing access road leading into Rocky Flats Environmental Technology Site east from Highway 93 carries approximately 2,700 vehicles per day (David Evans 2003). However, traffic on the existing access road will be greatly reduced following cleanup and closure of the site by DOE.

Highway 93

Colorado State Highway 93 west of Rocky Flats is relatively straight and flat with adequate sight distance in the vicinity of the existing access road. The Rocky Flats access road intersects Highway 93 at a signalized

Table 6. Daily and Peak Hour Traffic Volume Summary

Roadway Segment	2002 AADT [†]	2003 Weekday Count	2021 Estimated AADT
SH 93 - West of Rocky Flats	19,040	22,110	28,500
SH 128 - East of SH 93	4,510	5,170	6,700
Indiana Street - East of Rocky Flats	-	5,580	8,100

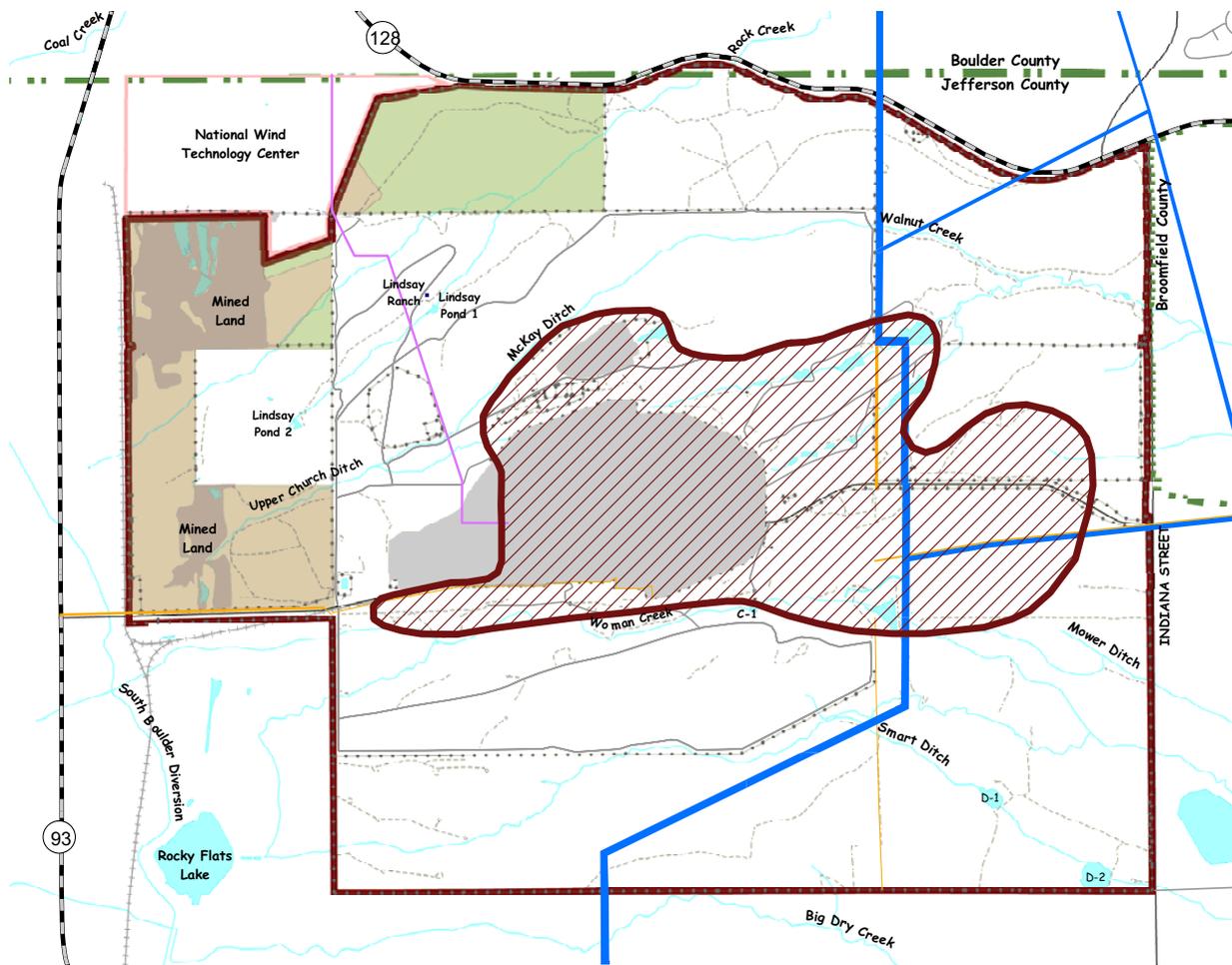
[†] Traffic volumes from CDOT website (CDOT 2003).
 AADT - Annual Average Daily Traffic.
 Source: David Evans and Associates, Inc. (2003).



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Infrastructure, Easements, and Utilities

- | | |
|--|---------------------------------------|
| — Gas Line Easement | DOE Retained Area (Subject to Change) |
| — Electrical Line Easement | Colorado State Highway |
| — Fiber Optic Line Easement | Paved Road |
| Existing Fence | Two-Track Road |
| Mine Permit Area | |
| Permitted Mining Use | |
| Habitat Preservation | |

0 0.5 1 Mile

November 2004



Figure 14. Infrastructure, Easements, and Utilities

intersection about 1.5 miles north of Highway 72. The section of Highway 93 at the access road has two through travel lanes with a southbound left turn lane and northbound right turn lane, as well as northbound and southbound acceleration lanes at the intersection. This segment of Highway 93 is categorized as an Expressway (Category E-X) in the CDOT State Highway Access Category Assignment Schedule (CDOT 2001), which defines the requirements for access locations, operation and design criteria along roadways on the state highway system. The speed limit along Highway 93 approaching the signal is 45 mph. Highway 93 carries about 22,100 vehicles per day (measured north of the west access road) (David Evans 2003). This volume is projected to increase during the life of the CCP (Table 6).

The Highway 93 and Highway 72 intersection southwest of the site is signalized. The Highway 93 and Highway 128 intersection northwest of the site is also signalized.

Highway 128

Colorado State Highway 128 north of the site is two lanes with substantial horizontal and vertical curves between Highway 93 and McCaslin Boulevard. This segment of Highway 128 is categorized as a Regional Highway (Category R-A) in the CDOT State Highway Access Category Assignment Schedule (CDOT 2001). City of Boulder and Boulder County Open Space is adjacent to the roadway on the north side and a signalized intersection is at McCaslin Boulevard. The speed limit in this segment is 55 mph. Highway 128 west of McCaslin Boulevard carries about 5,200 vehicles per day (David Evans 2003). This volume is projected to increase during the life of the CCP (Table 6).

Indiana Street

Indiana Street east of the site is a straight two-lane alignment over rolling terrain with little to no shoulder between Highway 128 and 96th Avenue. The speed limit in this segment is 50 mph. Indiana Street east of the project site carries about 5,600 vehicles daily (David Evans 2003). Traffic volume is projected to increase during the life of the CCP (Table 6).

This roadway is an arterial maintained by Jefferson County. The land on the east side of the roadway is City and County of Broomfield and City of Westminster Open Space and land owned by the Woman Creek Reservoir Authority. The Highway 128 and Indiana Street intersection northeast of the site is signalized. The existing Rocky Flats Environmental Technology Site has a gated access at a signalized intersection on Indiana Street about 1.5 miles north of 96th Avenue. The Indiana Street



East entrance road to Rocky Flats.

and 96th Avenue intersection southeast of the site is also signalized.

Internal Roads

The Rocky Flats site currently has many roads, fences and utilities that serve its pre-closure functions. Outside of the Industrial Area, which currently contains a network of paved streets, most of the site is accessed by a network of graded gravel roads and minor two-track roads. In addition, existing mineral rights and water rights on site are owned by outside entities. Existing infrastructure, utility easements and mining permits are shown on Figure 14.

UTILITIES

The utility infrastructure currently serving the site, including electric and sewer lines, will be removed or remediated in place prior to closure. According to the Refuge Act (Appendix A), existing, privately owned utility easements across the site will remain in place and the owners of those easements will have the right to continue to access them.

Natural Gas Easements

Two natural gas easements are currently on the site, a north-south easement and an east-west easement. The north-south easement runs through the eastern portion of the site. The east-west easement runs along the southern edge of the Industrial Area, extending between the east and west access gates (Figure 14). In an area east and south of the Industrial Area, the title to portions of both natural gas easements is unclear (Schliesswohl 2003).

Electrical Line Easements

A 230-kV electrical line follows an easement through the southern and eastern portions of the site. The line runs in a north-south orientation between the north boundary and

© Shapins Associates



Many internal roads will be revegetated.

the proximity of South Woman Creek, where it then runs southwesterly toward the southern boundary of Rocky Flats. A second electrical line easement runs from the proximity of the C-2 pond to the east gate along Indiana Street.

Two parallel 115-kV electrical lines follow easements from the northeast corner of Rocky Flats toward the Industrial Area. These lines were constructed primarily to serve the Industrial Area and will be removed and easements abandoned prior to site closure. Another electrical line easement follows the west access road from Highway 93 to the Industrial Area. This electrical line has been removed and the easement will be abandoned (the title to this easement is unclear). These easements are shown on Figure 14. An electrical line with no easement follows the west side of Indiana Street, within the Rocky Flats boundary.

Other Utilities

A fiber optic line with an easement runs from the NWTC in the northwest corner of the site, across the Rock Creek drainage, to the Industrial Area. The future of this line and easement is uncertain. In addition to the electrical line along the west side of Indiana Street, a telephone and fiber optic line also follows the Indiana right of way. These utility lines do not have easements and may be within the Rocky Flats site (instead of the Indiana right of way) (Schisswohl 2003).

MINERAL RIGHTS

A substantial portion of the mineral estate (subsurface mineral rights) associated with lands at Rocky Flats is privately owned. The Service believes that the exercise of these existing privately owned mineral rights, particularly surface mining of gravel and other aggregate material, at Rocky Flats will have an adverse impact on the management of the Refuge. The Service does not believe

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Clay mining along the Refuge's western boundary.

it can manage the Refuge for meeting the purposes of section 3177(e)(2) of the Refuge Act if certain mineral rights are exercised. Accordingly, the Service will not accept transfer of administrative jurisdiction from DOE for lands subject to the mining of gravel and other aggregate material at Rocky Flats until the United States owns the mineral rights of the land to be transferred to the Service, or until the mined lands have been reclaimed to a mixed prairie grassland community.

Three permitted mining areas currently exist on Rocky Flats (Figure 14):

- Bluestone Sand and Gravel mine and Bluestone expansion - 425 acres
- Lakewood Brick and Tile - 80 acres
- Church Ranch Rocky Flats Pit - 94 acres

LaFarge, Inc. (formerly Western Aggregates) operates the Bluestone sand and gravel quarry in the northwestern corner of the site. While the permit area includes 425 acres of land, about 300 acres are designated for habitat preservation, or non-mining setback, easements and buffer areas (Jefferson County 2002). The Bluestone permit allows expansion of the mine into the northern portion of the Rock Creek drainage, near the NWTC (Figure 14). Most of the Rock Creek drainage is included in a habitat preservation area.

Lakewood Brick and Tile operates an 80-acre clay mining area immediately north of the west access road.

In 2004, Church Ranch received a permit for gravel extraction from the Rocky Flats Pit, located east of the Lakewood Brick and Tile operation on the north side of the west access road. As directed by the Colorado Division of Minerals and Geology in the mining permit, the Church Ranch mining plan stipulates that it will not

expose groundwater. Mining activities will stay a minimum of 2 feet above groundwater (CDMG 2004; Church Ranch 2004).

WATER RIGHTS

As discussed in the *Water Resources* section, the current water supply to the Rocky Flats site will be terminated following the cleanup and closure of the existing facilities. The U.S. Government does not own water rights on the Rocky Flats site. However, two outside entities do own water rights. The Smart Ditch and Irrigation Company owns water rights through the Smart Ditch from Rocky Flats Lake (west of the site) to the D-2 Pond in the southeast corner. The City and County of Broomfield owns water rights in the Upper Church Ditch and the McKay Ditch, which convey water across Rocky Flats to the east and northeast. Other water rights on the site include the Mower Ditch and the Kinnear Ditch (Advanced Sciences 1991). A new water supply to serve the Rocky Flats NWR is not planned.

3.9. SURROUNDING LAND USE

The Rocky Flats site is at the intersection of Jefferson, Boulder and Broomfield counties. The site is surrounded by open space to the north, east and west and urban development to the northeast and southeast (Figure 15). Other nearby land uses include mining operations, wind energy research, and water collection and storage facilities.

MUNICIPALITIES

Four principal cities and towns, Arvada, Westminster, Broomfield and Superior, are located within close proximity of Rocky Flats. The general land uses of those portions of these municipalities located near the site are described below.

The City of Arvada is located southeast of Rocky Flats. While most of Arvada's residential and commercial development is over 1 mile from Rocky Flats, the City's incorporated boundary directly abuts the site. A large area immediately south of Rocky Flats and east of Highway 93 has been annexed by the City and is planned for residential and mixed development. This area, known as the Vauxmont property, is currently vacant and used for livestock grazing.

North of Arvada, the City of Westminster is located directly east of Rocky Flats. However, most of the western portions of Westminster's incorporated area consist of open space. Residential land uses begin about

1.5 miles east of Rocky Flats.

The City and County of Broomfield is located immediately east and northeast of Rocky Flats. The area to the east is dominated by open space associated with Great Western Reservoir and undeveloped land. Other portions of this area are planned for development supporting office complexes. An existing office complex is located about 1 mile northeast of Rocky Flats on the north side of Highway 128.

The Town of Superior is north and northeast of Rocky Flats' northeastern corner. Existing residential land uses are about ¼ mile north of Rocky Flats and future residential developments are proposed for the area. Superior's town center is located about 2 miles north of the Rocky Flats boundary.

WOMAN CREEK RESERVOIR AUTHORITY

The Woman Creek Reservoir Authority is a separate unit of government composed of the cities of Westminster, Thornton and Northglenn. The Authority constructed the Woman Creek Reservoir in 1996 to prevent the flow of surface water from Rocky Flats into Standley Lake, a

© Nelson, RFETS



Downy paintbrush.

drinking water source for several communities (CDPHE 2003a). The Woman Creek Reservoir Authority owns the reservoir and some of the land surrounding the reservoir.

OPEN SPACE

The Rocky Flats site is surrounded on three sides by designated open space. These open space lands are owned and managed by seven different jurisdictions and are described in detail in Section 3.10.

OTHER NEARBY LAND USES

The Colorado State Land Board manages state land in Section 16 immediately southwest of Rocky Flats. Portions of Section 16 have been mined for clay and aggregates and most of the land is leased for grazing livestock.

The DOE's National Renewable Energy Laboratory operates the NWTC immediately northwest of Rocky Flats. This facility is used for research on power-generating wind turbines.

Denver Water owns a large tract of land about 1 mile to the southwest of Rocky Flats along the west side of Highway 93 from Highway 72 south to Ralston Reservoir. While portions of this land are used for water collection and distribution facilities, most of it is undeveloped. This property includes a potential reservoir site in Leyden Gulch (Bassett 2002).

Two companies, TXI and LaFarge, operate gravel mining and processing facilities on two separate but contiguous sites in the northwest corner of Rocky Flats site and on adjacent privately owned land. The mining facilities consist of surface excavations, material conveyors, rail lines and processing facilities (DOE-NREL 2002).

Jefferson County Airport is located about 2 miles east of Rocky Flats. Airport runways are aligned in a northeast/southwest configuration. Aircraft takeoff and landing patterns currently do not pass directly over the Rocky Flats site (DOE-NREL 2002).

3.10. OPEN SPACE, RECREATION AND TRAILS

Rocky Flats is surrounded on three sides by designated open space. While some of these open space parcels restrict public use, others provide a network of recreational trails that are connected to the surrounding communities (Figures 15 and 16).

CITY OF BOULDER OPEN SPACE AND MOUNTAIN PARKS

The City of Boulder Open Space and Mountain Parks (BOSMP) owns and manages several large open space parcels near the northern and western edges of Rocky Flats. BOSMP lands along the northern edge of Rocky Flats extend from near the middle of Rocky Flats to the west along the Boulder/Jefferson county line for over 4 miles to the top of Eldorado Mountain. These lands are collectively referred to as South Boulder Open Space. Within Jefferson County, BOSMP also owns the Jewell Mountain and Van Fleet properties to the west of Rocky Flats between Highway 93 and Coal Creek.

BOSMP lands offer a network of soft-surface trails available for hiking, mountain biking and equestrian use. The Flatirons Vista and Greenbelt Plateau trailheads are located about 1 mile from Rocky Flats to the northwest near the Highway 93/128 intersection.

BOSMP is working with several other organizations to protect and restore the Coal Creek riparian area that runs through their properties near Rocky Flats. Restoration activities include fencing to control livestock, stream channel restoration, wetland restoration and monitoring. Small mammal trapping along Coal Creek has revealed several occurrences of Preble's meadow jumping mouse (BOSMP 2002).

BOULDER COUNTY OPEN SPACE

Boulder County owns several open space parcels on the north side of Rocky Flats between the Town of Superior to the east and BOSMP lands to the west. These holdings include the Lindsay, Zacharias/Thomas and Carlson/Lastoka properties. Recreational access to Boulder County Open Space lands to the north and northeast of Rocky Flats is from the Coalton Trail, which begins on Highway 128 north of Rocky Flats. The Coalton Trail provides recreational access (hiking, biking and equestrian uses) to the County open space lands northeast of Rocky Flats. The trail connects to the Rock Creek Trail in the Town of Superior.

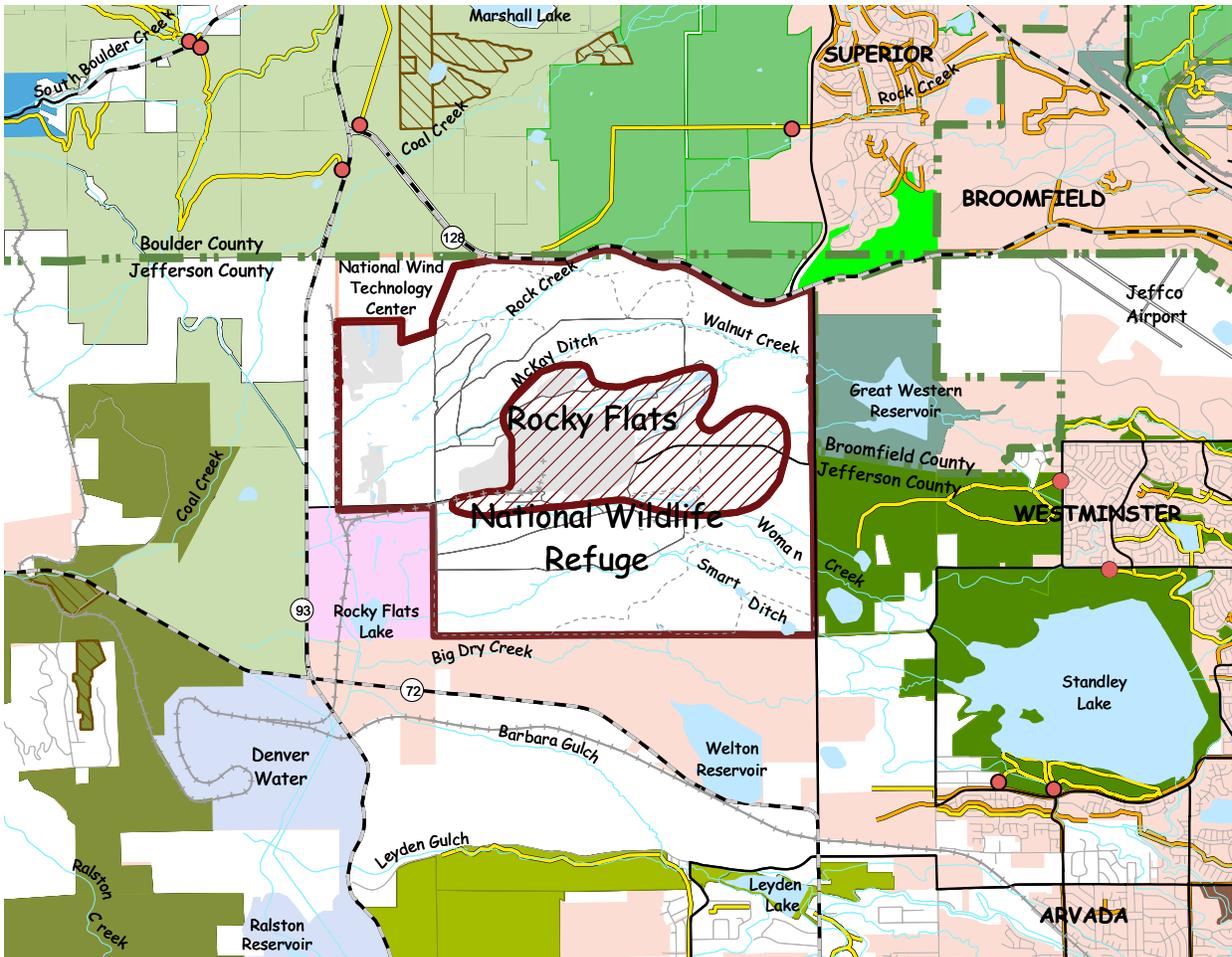
JEFFERSON COUNTY OPEN SPACE

Jefferson County owns and manages several parcels to the west and southwest of Rocky Flats. The Ranson-Edwards property immediately west of Rocky Flats extends from Coal Creek to the west. Coal Creek Canyon Open Space is located along the south side of Highway 72 about 2 miles west of Rocky Flats. Jefferson County also owns several conservation easements in this area. White Ranch Open



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge Jefferson County, CO



Regional Open Space

- City of Boulder Open Space
- Boulder County Open Space
- Jefferson County Open Space
- Eldorado Canyon State Park
- Arvada Open Space
- Westminister Open Space
- Broomfield Open Space
- Superior Open Space
- Conservation Easement

- Two Ponds NWR
 - State Land
 - Denver Water
 - Incorporated Area
 - DOE Retained Area (Subject to Change)
- Surrounding Trail Facilities**
- Existing Trail -- Soft Surface
 - Existing Trail -- Paved
 - Existing Trailhead

0 1 2 Miles

November 2004



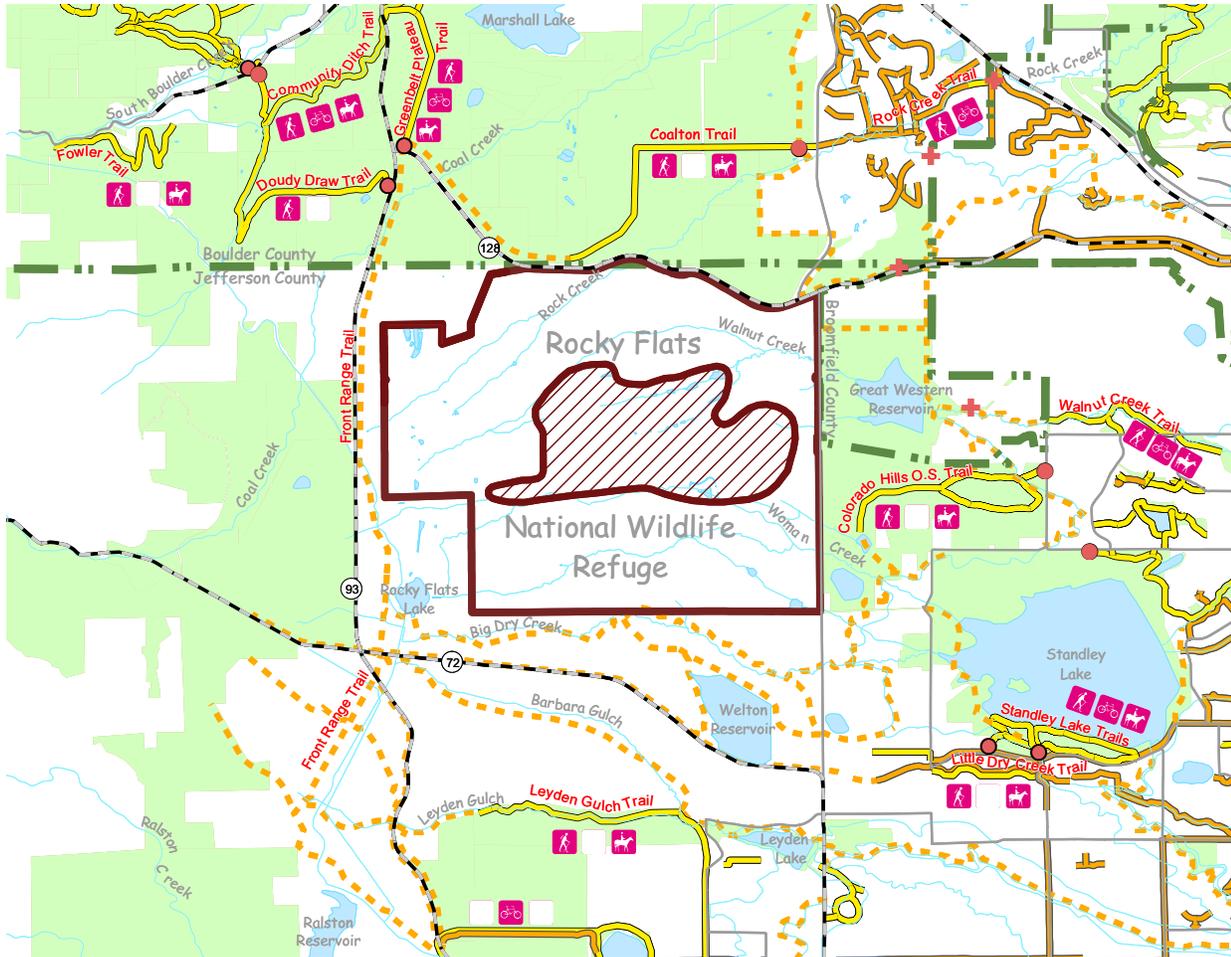
Figure 15. Regional Open Space



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge

Jefferson County, CO



Regional Trails

- Open Space
- Surrounding Trail Facilities**
- Existing Trail -- Soft Surface
- Existing Trail -- Paved
- Proposed Trail
- Existing Trailhead
- Proposed Trailhead
- DOE Retained Area (Subject to Change)

Permitted Trail Uses

- / Hiking
- / Biking
- / Equestrian

Note: Permitted uses for proposed trails have not been determined

0 1 2 Miles

November 2004



Figure 16. Regional Trails

Space is located about 3 miles to the southwest of Rocky Flats.

The 2,807-acre Coal Creek Canyon Park currently has no developed trails or facilities. Due to uncertainty surrounding the future management of surrounding publicly owned properties, including Rocky Flats and Denver Water properties, Coal Creek's Management Plan recommends postponing trail and facility development for 5 to 7 years (JCOS 2001).

CITY OF ARVADA OPEN SPACE

The City of Arvada owns several open space parcels about 2 miles south of Rocky Flats. These parcels are around Arvada Reservoir, along Leyden Gulch, and in the area between the two. A network of paved and unpaved trails runs throughout the City of Arvada, including the unpaved Leyden Gulch trail located about 1.5 miles south of Rocky Flats.

The City has identified additional trail corridors south of the Rocky Flats site that would provide potential linkages between Arvada and the Refuge (City of Arvada 2001).

© USFWS



The black-tailed jack rabbit is found on the Refuge.

Proposed trails include the following:

- **Leyden Gulch Trail** – This extension of an existing trail will cross Highway 93, providing access to Jefferson County open space. It will be open to hiking, biking and equestrian users.
- **Big Dry Creek** – The trail will follow the Big Dry Creek from Standley Lake to Highway 93 and will border the Refuge's southern boundary. A proposed trailhead for the Big Dry Creek trail will be 1/8 mile south of the Refuge's boundary. The hiking and biking trail could also link the Refuge to the proposed Vauxmont Park.
- **Barbara Gulch Trail** – This trail will extend from the Highway 72/93 intersection to the City of Arvada. The trailhead at the intersection will be an important hub in an alternative transportation route (e.g., bike commuters) along Highway 93.
- **Jeffco Trail** – The City's master plan also identifies a proposed Jeffco trail along Church Ditch which runs north-south between the Refuge and Standley Lake.

CITY OF WESTMINSTER OPEN SPACE

The City of Westminster has several open space properties to the east and southeast of Rocky Flats. These properties include the Colorado Hills Open Space and Standley Lake Regional Park. Colorado Hills includes a soft-surface trail between Mower Reservoir and adjacent residential areas. Standley Lake is a regional destination for boating, swimming and picnicking. This park is also a focal point for Arvada and Westminster's paved greenway trail systems. The city's soft surface Walnut Creek Trail terminates less than 2 miles from Rocky Flats' eastern boundary and is open to hiking and biking. The trail could provide a potential link between the Refuge, surrounding communities and the Westminster trail system.

CITY AND COUNTY OF BROOMFIELD OPEN SPACE

Directly east of Rocky Flats, Broomfield owns the Great Western Open Space lands surrounding its Great Western Reservoir. This area consists mainly of former grazed or cultivated fields. The City and County of Broomfield considers Great Western Open Space to be a highly suitable receiving site for prairie dog relocation (City and County of Broomfield 2001). The establishment of a large

prairie dog town at Great Western Reservoir Open Space would likely attract a greater number of raptors and other predators to the area and may encourage the expansion of prairie dogs in the eastern portions of the Refuge.

TOWN OF SUPERIOR OPEN SPACE

Superior's open space is located across Highway 128 at the northeast corner of Rocky Flats, on the east side of McCaslin Boulevard. A network of paved trails throughout Superior's residential neighborhoods connects to the Rock Creek Trail, which continues to the northeast into Broomfield (Superior 2001).

3.11. VISUAL RESOURCES

Visual resources at Rocky Flats can be placed under three general categories: views of the Rocky Flats area from surrounding communities, views from Rocky Flats to surrounding landmarks, and internal views. Disturbed areas at Rocky Flats are also a component of its current visual character.

VIEWS FROM SURROUNDING AREAS

Situated on a high, sloping pediment, the Rocky Flats site lies at the base of the Front Range of the Rocky Mountains. This area is commonly referred to as the Front Range mountain backdrop and consists of various ridges and peaks including South Boulder Peak, Eldorado Mountain, Crescent Peak and the Ralston Buttes. Beyond the mountain backdrop are the Indian Peaks, which are intermittently visible from Rocky Flats and surrounding communities.

The Rocky Flats area, including the Refuge and surrounding open space lands, defines the northwestern boundary of the Denver metropolitan area, where urban and suburban development gives way to open grasslands that slope up into the craggy forests of the mountain backdrop. Views to Rocky Flats capture a range of landscape types as the grasslands give way to the ponderosa draped foothills and on to the towering Rocky Mountains. This view can be appreciated from many areas throughout the Denver metropolitan region.

VIEWS FROM ROCKY FLATS

Several notable views from the Refuge characterize the site's visual quality. These views, both internal and distant, are enjoyed from some of the high points along the pediment in the western and central portions of the Refuge. The view of the Rock Creek drainage and Lindsay Ranch from the east is one of the most striking views from the Refuge.

While Rock Creek offers topographical relief and vegetative variety, the Lindsay Ranch structures reveal the site's history. Beyond these immediate features, the high peaks along the Continental Divide are visible through Eldorado Canyon. From the upper Walnut Creek area looking east, the mixed grassland prairie and riparian areas in the eastern portions of the Refuge are backed by Great Western Reservoir and the communities and open plains beyond. Several high points in the southern portion of the Refuge provide distant views to the southeast of Standley Lake and the downtown Denver skyline.

© Mauro



The Front Range mountain backdrop is a visual resource at the Refuge.

INTERNAL VIEWS

Internal views at Rocky Flats are generally characterized by the open grassland landscape. While the majority of the site is composed of large expanses of uninterrupted grassland, distinct vegetation along drainages (i.e., cottonwoods and upland shrubs) and varied topography present additional visual resources. Numerous drainages and gullies slope steeply to the east where the flat pediment top gives way to more rolling grasslands. This terrain provides numerous opportunities for scenic overlooks with commanding views as well as secluded pockets with intimate views of the Refuge landscape.

DISTURBED AREAS

Visual resources at Rocky Flats are affected by facilities associated with mining and former weapons production on the site. Currently over 70 miles of maintenance and access roads occur on the Rocky Flats site (including Refuge land and area to be retained by DOE). While these roads are generally not visible from surrounding areas, they interrupt many of the internal views at Rocky Flats.

The buildings and facilities within the Industrial Area are visible throughout the site and are a visual landmark from surrounding areas. Prior to the establishment of the Refuge, these facilities will be removed and much of the current Industrial Area will consist of restored grasslands. While the industrial nature of this area will change, it will continue to compromise internal views and will be a visual reminder of the former facilities for several years. Over the long term, as grassland restoration begins to take form, DOE envisions a visually “seamless” division between the Refuge and the former industrial site that will be retained by DOE.

3.12. NOISE

Existing noise levels vary widely across the Refuge. Noise levels on the north, west and east perimeter are affected by traffic on the highways adjacent to these locations. Because traffic volumes are higher on Highway 93, noise levels are higher on the western perimeter than at other locations. Noise levels are lower on the southern perimeter because Highway 72 is farther from the site boundary. Wind generators at the NWTC also generate noise. While the site is undergoing cleanup and building demolition, construction noise near the Industrial Area is considerably louder than ambient conditions. Noise levels vary with the type of cleanup activity. Rocky Flats is typically a very windy location and wind noise contributes to the overall ambient noise levels.

Noise levels decrease away from area highways, site

cleanup, and NWTC wind generators. After cleanup, noise levels in the center of the Refuge will be very low and the Refuge will provide opportunities for solitude.

3.13. AIR QUALITY

Rocky Flats is located within the boundary of the Denver Metropolitan Area for air quality planning purposes. For many years, the Denver metropolitan area has experienced carbon monoxide, ozone, and particulate matter air pollution as well as visibility problems. These conditions have recently improved, however, and the Denver area is now in attainment of most of EPA's health-based standards for air quality with the exception of ozone (EPA 2002). Ozone levels in the summer of 2003 violated standards (CDPHE 2003). Regulatory requirements may control the timing of certain natural resources management activities, such as prescribed burning, which requires a permit from the state.

Air quality is monitored at five air monitoring stations operated by the CDPHE. Two of these stations are located just off-site at the northeast and southeast site boundary along Indiana Street, downwind of Rocky Flats. All criteria air pollutants are below state standards. It has not been determined whether the air monitoring stations will be removed following cleanup of the site.

3.14. SOCIOECONOMICS

POPULATION AND DEMOGRAPHICS

The population in Jefferson County grew from 438,430 in 1990 to 527,056 in 2000 (U.S. Census Bureau 2002), an average annual increase of about 1.8%. Jefferson County population is expected to increase about 0.75% annually from 2000 to 2015, while the state population is expected to increase by 1.7% annually (Colorado Department of Local Affairs 2002).

Rocky Flats is located in Jefferson County's North Plains Community Planning Area, which also includes portions of Westminster, Arvada, Golden and unincorporated areas. Within this planning area, the population grew from 8,453 in 1990 to 10,194 in 2000, an average annual increase of about 2% (Jefferson County 2002). About 95% of the North Plains population consider themselves to be white (compared to 83% state wide), while about 5% consider themselves to be Hispanic or Latino in origin (Jefferson County 2002).

EMPLOYMENT

The average unemployment rate for Jefferson County in 2001 was 3%, while the state average was 3.72%

(Colorado Department of Local Affairs 2002). In 2000, the services sector employed 79,317 workers while the retail trade sector employed 62,838 and the government sector employed 51,762 (Colorado Department of Local Affairs 2002).

INCOME

In 2000, per capita personal income was \$36,442, a 5.6% annual increase since 1990. Total personal income in Jefferson County was \$19.3 billion in 2000, up from about \$9.4 billion in 1990, reflecting an average annual growth rate of about 7.5% (Bureau of Economic Analysis 2002). The largest sources of work-related personal earnings by industry were services (16.1%), government (8.3%), and manufacturing (7.9%). Retail trade accounted for about 3% of the total personal income in 2000. Transfer payments, dividends, interest and rent accounted for 22% of personal income in 2000 (Bureau of Economic Analysis 2002).

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chapter 4



MANAGEMENT DIRECTION

Chapter 4. Management Direction

This chapter describes the direction of refuge management over the 15 year life of the CCP. The focus of both wildlife and habitat management and public use management are summarized followed by a detailed description of the objectives and strategies for achieving each of the refuge goals.

4.1. WILDLIFE AND HABITAT AND PUBLIC USE MANAGEMENT DESCRIPTIONS

With many miles of trail, thousands of acres of grassland habitat and a beautiful mountain backdrop, the Refuge could become a popular destination for wildlife enthusiasts, naturalists and students within the Denver metropolitan area. The visitor experience at the Refuge will be characterized by the Service's commitment to providing visitors with an understanding and appreciation of the flora and fauna of the prairie ecosystem. The Service's efforts to connect visitors to their natural resource heritage will build upon regional efforts to promote an appreciation for the grassland environments.

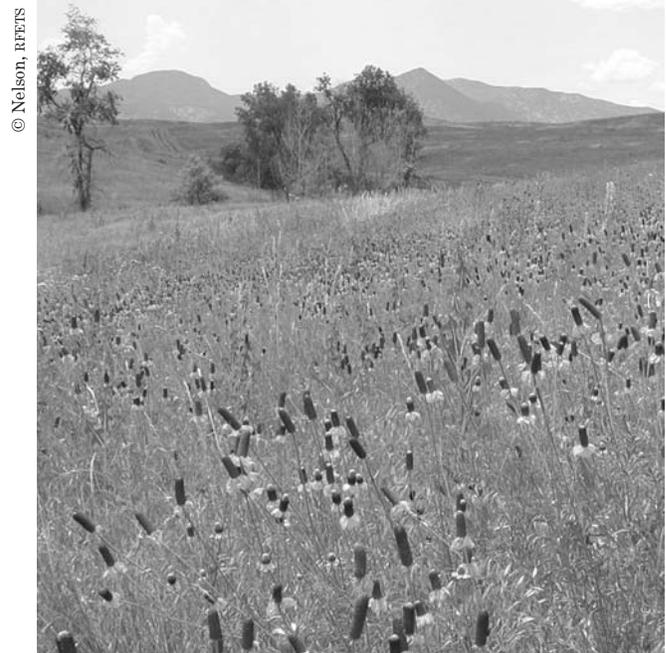
Given the current cleanup of the Rocky Flats Environmental Technology Site and the Service's commitment to habitat conservation and enhancement, the Refuge will provide an excellent opportunity to educate the public about the processes of grassland restoration and to actively involve them in the rehabilitation of the landscape.

WILDLIFE AND HABITAT MANAGEMENT

Preble's Habitat Management

Riparian and wetland communities at the Refuge support habitat for a variety of wildlife species, including the threatened Preble's meadow jumping mouse. The Service will protect and maintain Preble's habitat throughout the Refuge. While meeting the Service's obligations under the Endangered Species Act, the protection of Preble's habitat also will serve other species that depend on riparian and wetland communities for survival.

The Service will also strive to improve habitat for the Preble's meadow jumping mouse (and other riparian species). Part of the riparian habitat enhancement efforts will be the removal and revegetation of unused roads and stream crossings. The Service will conduct surveys of Preble's habitat every 2 to 3 years to detect changes in



Prairie coneflower in the mixed prairie grassland.

size and location of existing populations. Surveys will include monitoring plant diversity in riparian areas. The Service will seek funding and partnerships to assist in monitoring the impacts of recreational use on Preble's and its habitat.

Xeric Tallgrass Management

The rare xeric tallgrass grassland community, which dominates the pediment tops in the western portion of the Refuge, is an important natural resource that needs special consideration and management. The Service will manage the xeric tallgrass to maintain the extent and improve the native species composition of this community. The Service will develop a vegetation management plan to direct management efforts (including herbicide application, biological controls, prescribed fire, grazing and mowing) and will monitor species composition and weed infestations every few years to ascertain the effectiveness of management efforts.

Mixed Grassland Prairie Management

Nearly half of the Refuge consists of mixed grassland prairie communities. While these communities are relatively common along the Colorado Front Range, they play an important role in providing habitat for various

wildlife species. Management strategies for the mixed grassland prairie include the use of prescribed fire and the use of managed grazing. In the southeast corner of the Refuge, a former agricultural field has been planted with non-native grasses. The Service will revegetate this and other disturbed areas with native grassland species that will improve the extent and diversity of grassland habitat. In all alternatives, additional management strategies will be implemented in the mixed grassland prairie communities according to the objectives and strategies outlined under weed management, prairie dog management, habitat restoration and species reintroduction.

Road Restoration and Revegetation

Rocky Flats currently has over 70 miles of roads, of which about 50 miles will be under Service jurisdiction. Roads and stream crossings that will not be used for maintenance access, fire control, trails, or other Refuge purposes will be removed and revegetated. The restoration effort will entail the removal and revegetation of 26 miles of road and 13 stream crossings

Weed Management

Noxious weeds present a tremendous challenge to the health and diversity of native plants and wildlife habitat on the Refuge. The Service will control the spread and reduce the density of diffuse knapweed, Dalmatian toadflax and Canada thistle during the 15-year timeframe of the CCP.

Weed management scenarios will employ a comprehensive IPM approach, including the use of herbicides, biological controls, mechanical removal, prescribed fire and controlled grazing. Weed infestations will be mapped annually. Additional methods will include informal surveys along roads and trails and temporary fences to collect tumbleweeds which disperse seeds with the wind.

Deer and Elk Management

While the sizes and locations of deer and elk populations at the Refuge are well known, the carrying capacity of the habitat at the Refuge relative to population size has not been determined. The Service and/or CDOW will determine a target population for deer and elk on the Refuge and will seek to manage those levels. Tools to attain these population goals include culling by Service and/or CDOW staff and a limited public hunting program.

Managing deer and elk within target population levels for the Refuge will minimize the potential for overgrazing and overbrowsing of sensitive riparian habitat. The Service will monitor sensitive areas for such impacts.

Prairie Dog Management

The short and mixed grassland communities in the eastern portions of the Refuge provide up to 2,460 acres of habitat for black-tailed prairie dog. About 113 acres of prairie dog colonies were mapped at the Refuge in 2000. Due to recent plague outbreaks, about 10 of those acres are currently occupied. Prairie dog populations will be allowed to expand naturally within their primary habitat areas. Colonies will be limited to 750 acres. The Service, however, will not accept unwanted prairie dogs that are relocated from other jurisdictions.

Species Reintroduction

The task of restoring native species to the Refuge has already begun. In 2003, two native fish species that have been decreasing regionally were introduced into Rock Creek. Additionally, the CDOW, the City of Boulder, and Boulder County introduced a population of sharp-tailed grouse onto their open space properties north of the Refuge. The Service will continue to work with CDOW to facilitate species reintroduction at the Refuge. The Service will take active steps to evaluate the suitability of additional species reintroductions and to complete a management plan for sharp-tailed grouse reintroduction on the Refuge.

PUBLIC USE MANAGEMENT

The Refuge will be open to the public for a variety of uses. Three aspects of refuge management that will shape the visitor's Refuge experience are public outreach, interpretation, and public use activities and facilities. These components of refuge management are described to illustrate how a visitor would experience the Refuge.

The public outreach component describes methods used to educate the potential visitor about the Refuge, pique their interest, and recruit them to participate in public use programs. The interpretation component identifies critical stories to be told and the natural and cultural resources that will become the basis for educational and interpretive activities. How visitors access the site, what activities they enjoy, where they travel and what facilities they encounter are outlined in the public use activities and facilities component.

Public Outreach

Improving public perception of the Refuge by informing visitors about the site's natural resources and addressing safety concerns is essential to the development of successful public use programs. Past concerns about contamination, radiation exposure and other environmental risks have fostered apprehension about



U.S. Fish & Wildlife Service

CCP / "Wildlife, Habitat & Public Use" Rocky Flats National Wildlife Refuge

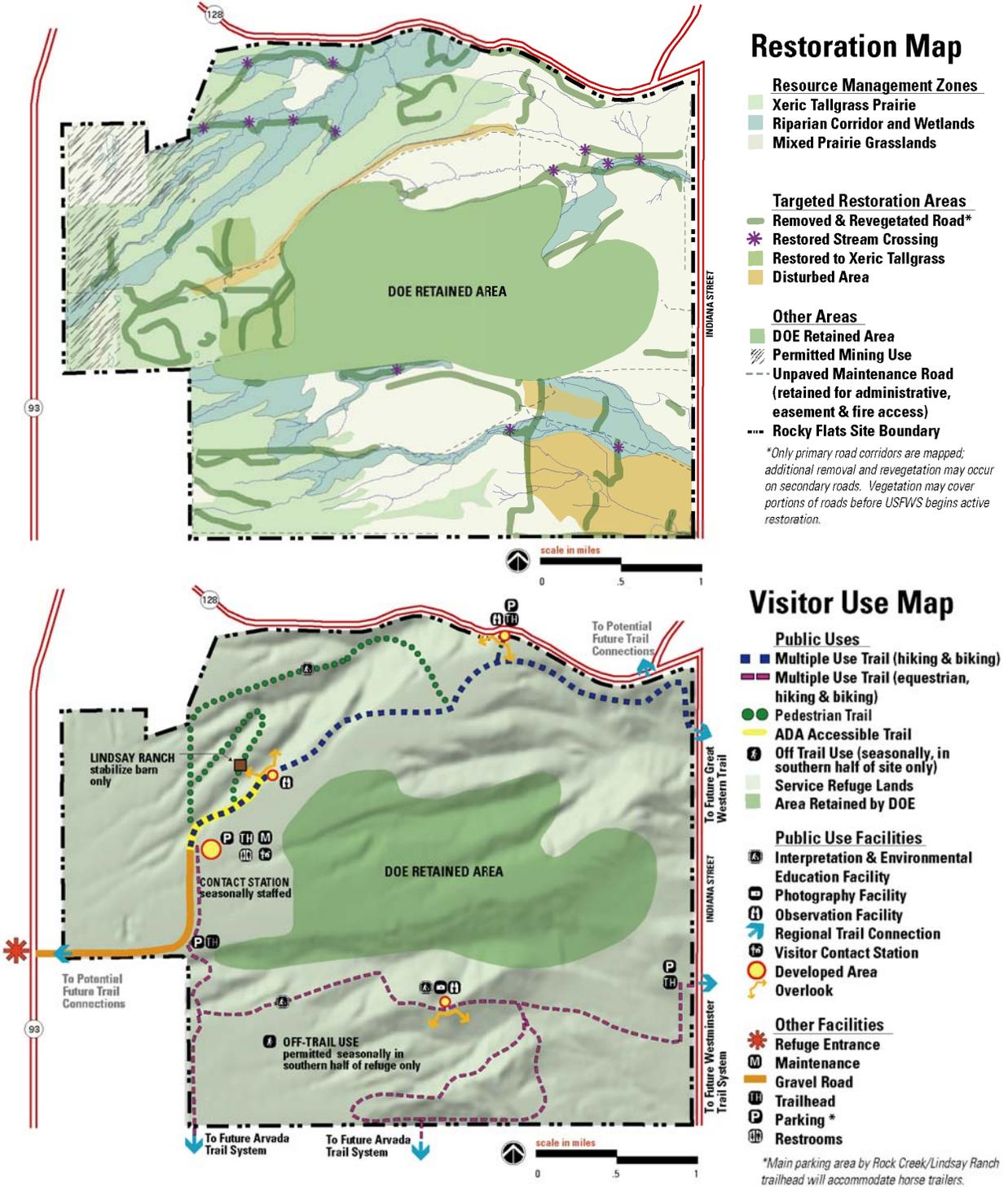


Figure 17. Comprehensive Conservation Plan

visiting the Refuge. The Rocky Flats site has been closed to the general public for over 50 years and the lack of access opportunities has also contributed to fearful speculation about the site's condition.

In an effort to assuage public safety concerns, the Service will develop public outreach programs and attempt to build a stronger base of public understanding, support and stewardship within the Denver metropolitan area through a variety of outreach methods.

Communication

The "Open and Effective Communication" goal (described in Chapter 1) is driven by the Service's commitment to provide the public with clear information about the safety of the site, instill confidence in the Service's ability to provide safe visitor experiences and to develop community support for the Service's programs and management policies. In response to the concerns raised during public scoping regarding the site's history and contamination, the Service sees the value in developing a communication goal to guide public outreach efforts. The goal clearly emphasizes the importance of educating the public about the Refuge, the Service and the NWRS.

The Service will develop a variety of public outreach methods to inform the public about environmental stewardship, risk communication, CCP implementation, and the mission of the Service and the NWRS. For example, a visitor may learn about the Refuge and opportunities to visit the site through media coverage, newsletters and flyers, or by attending community events. To reach a broad range of people, the Service will coordinate with local partners to participate in community

events and provide input on local environmental issues. The outreach efforts will be instituted during the first year of the Refuge's establishment and will be ongoing throughout the life of the CCP.

Interpretation

The goal of the interpretive programs at the Refuge is to inform the public about the Rocky Flats site, educate about resident wildlife and their habitats, and cultivate a stewardship ethic. Committed to fostering an appreciation of the Refuge's natural resources, the Service developed interpretive themes that focus on wildlife, wildlife habitat and the site's history. Providing the public with interpretive information and programs will enhance the public's understanding of their surrounding natural environment and increase support for the Service's habitat conservation efforts.

Interpretive Themes

Interpretive themes will provide a basis for the development of public use activities. The themes capture the essence and importance of ideas, concepts and features that emerged from the Service's review of the Refuge's natural and cultural resources.

The four themes represent the central messages that the Service wants to convey to visitors. The themes provide the foundation for all interpretive programming and facility development. Each theme is summarized by a simple statement and supported by several subthemes. Linked specifically to certain resources, the subthemes further define the stories about Refuge resources and the Service's role in transforming the site (Table 7).



Interpretive panels at overlooks will provide information about the Refuge's natural and cultural resources, such as Rock Creek and the Lindsay Ranch.

Interpretive Facilities

A variety of facilities will be developed to help the visitor better understand the interpretive themes. The primary interpretive facilities will be signage, displays and a Refuge website.

Signage/Displays: Signs and displays varying in design will help illustrate the historical and natural stories of the Refuge. Listed below are the types of signage a visitor will find upon entering and exploring the Refuge:

- **Roadside and Boundary Signs:** Signage is needed to notify people of the Refuge’s location and direct visitors to the Refuge. A refuge entrance sign will be placed outside the main entrance along Highway 93, and the exterior boundary will be posted with standard NWR boundary signs.
- **Interpretive Signs:** Located at all trailheads and in selected spots along trails, small signs will display a map and/or interpretive facts about a specific location or topic. Trailhead signs will include information about the site’s history, clean up and access restrictions.
- **Interpretive Sign Panels:** Larger signs at the Rock Creek overlook, the contact station, and Lindsay Ranch will display interpretive information about the Refuge’s resources and/or visitor orientation information.
- **Directional Signs:** Located at select trail intersections, signs will provide visitors direction and announce trail rules and regulations.
- **Visitor Kiosk:** Located outside the contact station, the kiosk will consist of three panels fastened to a wooden structure. The kiosk will provide orientation, regulatory and interpretative information for visitors entering the Refuge.
- **Interpretive Displays:** Permanent and changing displays that highlight the Refuge’s natural resources will be showcased in the contact station.

Table 7. Interpretive Themes

Theme: <i>Habitat Restoration:</i> “Diverse wildlife populations require healthy plant communities.”	
Subthemes: Explore the various types of habitat at the Refuge and promote visitors’ awareness, understanding and appreciation of both the prairie ecosystem and the Service’s restoration efforts.	<p><i>Plants for Wildlife:</i> Riparian and prairie plant communities including the rare xeric tallgrass and tall upland shrublands provide shelter and food for wildlife.</p> <p><i>Battling Invasive Weeds:</i> Invasive weeds crowd native plants and degrade habitat at the Refuge and throughout the West.</p> <p><i>Restoring the Prairie:</i> Restoring and maintaining the native prairie requires a variety of tools and techniques.</p>
Theme: <i>Wildlife:</i> “Wildlife take refuge at Rocky Flats.”	
Subthemes: Explore the relationships between habitat types and the kinds of wildlife they support.	<p><i>Home to Wildlife:</i> Refuge wildlife forage and nest in the grasslands, occupy the riparian areas and migrate to and from adjacent open space lands.</p> <p><i>Threatened and Endangered Species:</i> Preble’s meadow jumping mouse, a threatened species, resides in the riparian habitat found at the Refuge.</p> <p><i>Returning to the Prairie:</i> Reintroducing prairie species to the Refuge boosts biodiversity and creates unique viewing opportunities.</p>
Theme: <i>Wildlife and People:</i> “Wildlife comes first.”	
Subthemes: Explore how wildlife and people co-exist and how both will benefit from habitat restoration and conservation.	<p><i>Watchable Wildlife:</i> Viewing wildlife in a natural setting.</p> <p><i>Respecting Wildlife:</i> While an enjoyable activity, wildlife observation requires respect and consideration for wildlife.</p>
Theme: <i>History:</i> “Native Americans, settlers and the DOE all used Rocky Flats. Today, it is protected for wildlife.”	
Subthemes: Interpret the historical periods that have shaped the site and how generations have managed to survive in the harsh climactic conditions of the prairie landscape.	<p><i>Prehistoric Prairie Settlement:</i> Native American activity on the plains - describing settlements, hunting and day-to-day survival on the prairie.</p> <p><i>Settling the Frontier:</i> Homesteading on the Great Plains and the establishment of the Lindsay Ranch.</p> <p><i>Plutonium Trigger Production:</i> DOE’s development and management of a nuclear weapons production site and the cold war history. The Service will work in collaboration with the Cold War Museum to tell the story of the site as a nuclear production site.</p> <p><i>A Renewed Purpose:</i> DOE’s cleanup and closure of the production site and the Service’s ongoing efforts to restore and conserve the prairie in order to provide habitat for wildlife and wildlife-dependent public uses.</p>

Website: A Refuge website will provide a reference resource for students and the general public to learn from their classroom and/or home computer fun facts about the Refuge as well as scientific data related to the grassland ecosystem and its wildlife. The website will serve several education levels.

Interpretive and Environmental Education Programs

Outlined below are general descriptions of the types of interactive and field-based interpretation and educational activities proposed for the Refuge. Directly tied to the interpretive themes, the programs will bolster environmental awareness and appreciation by highlighting the natural features and history of the Refuge. Refuge staff will develop and run the programs with the assistance of volunteers. Programs will be tailored to attract a diversity of visitors and the types of programs and their topics will change seasonally.

- **Guided Tours:** Refuge staff or a volunteer will lead interpretive walks that focus on wildlife, habitat needs, or the site's other natural and cultural resources. Tours will highlight unique characteristics of the site and identify the interrelationship between prairie plant communities and wildlife populations.
- **Nature Programs/Presentations:** Conducted either in the field, in surrounding communities, or in the contact station, presentations will offer an in-depth explanation of a specific topic. To the extent possible, Refuge volunteers and/or partners will lead these programs/presentations.
- **Hands-On Work:** Programs developed to recruit volunteer participation in prairie restoration may include seed collection, weed removal, or seeding. The work activities will include information sessions on restoration techniques and the benefits of restoring prairie habitat. Volunteers also may be involved with Refuge enhancement projects such as trail construction and general maintenance.
- **Teacher Resource Guides and Workshops:** Refuge staff will develop teacher resource guides that present the necessary information for teachers to conduct their own environmental education programs at the Refuge. The guides will meet Colorado's model content standards and will likely include pre-visit activities,

on-site activities, post-visit activities and assessment activities. Additionally, the Service will sponsor teacher training workshops to familiarize local educators with the Refuge's resources.

Public Use Activities and Facilities

Although guided by a "Wildlife First" mission that promotes the "conservation, management and where appropriate, restoration of the fish, wildlife and plant resources and their habitats," the Refuge System is also committed to investing in public use facilities and programs that foster an appreciation of the Refuge's natural resources. By raising public awareness and understanding of the prairie habitat and wildlife, the Service hopes to cultivate a land stewardship ethic among visitors.

Access

Access to the site will be obtained via a two-lane road off of Highway 93. The access road will direct visitors to orientation information, trailheads and parking areas.

To tie into surrounding existing and proposed trail systems, additional trailheads will be built on the north, east and south boundaries of the Refuge. Strategically located to provide links to proposed trail networks, the secondary access points along the Refuge boundary will permit visitors to enter the site on foot, bike and in some cases by horse. The Refuge will remain open from sunrise to sunset.

Since visitors will be able to enter the site from a number of access points, each entry will serve as a "use portal" where signage will inform users about the distinction between where they came from (e.g., municipal open space) and where they are going (a National Wildlife Refuge). In addition to clarifying access opportunities and restrictions and information on the site's history and cleanup, the signage will inform visitors to the conservation practices and priorities that may differ from surrounding open space areas.

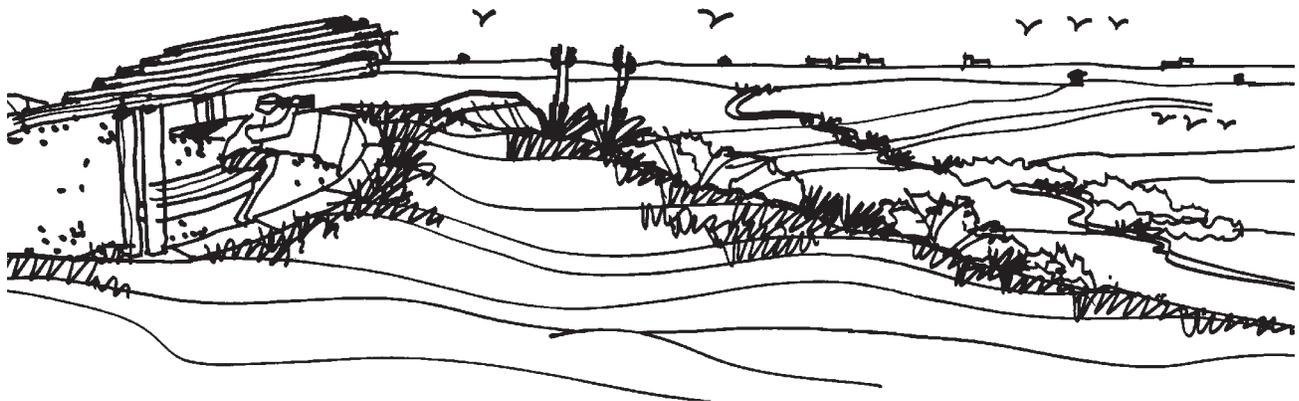
Wildlife-Dependent Public Uses

The Refuge will provide a spectrum of wildlife recreation opportunities ranging from guided tours, to hiking, to interactive interpretation programs. Visitors will explore and learn about the site independently with the aid of interpretive facilities including signage, kiosks and printed materials. Through the careful siting of trails and the design of visitor use facilities, it will be possible to shape the Refuge environment so that it invites exploration and reveals natural processes while minimizing impact to sensitive areas. Interpretive and educational programs will promote appreciation of the ecology of the prairie environment and inspire a greater appreciation for the Front Range's remaining grassland habitat. Dogs and other pets will not be permitted on the Refuge.

The visitor experience will include opportunities for the public to engage in hunting, wildlife observation, photography, interpretation and environmental education. The public use activities will be carefully managed to avoid harmful impacts to wildlife and their habitat. Because the Service will focus on restoration and facility development during the first 5 years of Refuge operation, most of these activities will not be instituted until the Refuge is fully open to the general public (by year 6).

- **Hunting:** A highly controlled youth and/or disabled hunting program will be held a few weekends a year. This program will allow youth and disabled individuals to hunt deer and elk with the assistance of Service staff (and Refuge partners) in a safe environment where they will have reasonable harvest opportunities. If necessary, the Service could consider expanding the hunting program to include the general public (depending on wildlife management needs). During special hunting weekends, the Refuge will be closed to all other visitors.
- **Wildlife Observation and Photography:** Trails, blinds and overlooks will provide numerous vantage points for observing wildlife. Naturalists, photographers and other wildlife enthusiasts will also enjoy opportunities to view and photograph wildlife off-trail (between October and May in areas south of Woman Creek).
- **Interpretation:** Upon entering the Refuge, visitors will find signage, maps and interpretive panels outside a visitor contact station. Interpretive and informational materials at trailheads, overlooks, and the contact station will educate visitors about specific site resources such as grassland restoration, early settlement of the prairie and wetland ecology.
- **Volunteers:** A volunteer program will be developed to provide support for Refuge staff. Volunteers will assist with orienting and educating visitors. Any visitor interested in learning more about the Refuge and, in turn, improving the Refuge experience for others will have the opportunity to volunteer.
- **Environmental Education:** Throughout the life of the CCP, the target audience for on- and off-site environmental education programs will be high school and college-level students. During the initial years of Refuge establishment (years 1 through 5), students will be encouraged to engage in research-oriented and independent study. Following year 5, guided tours and other nature programs will be designed to explore the site's natural and cultural resources and foster an understanding and lasting appreciation for the prairie environment.

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Viewing blinds will provide opportunities for wildlife observation and photography.



Multi-use and pedestrian-only trails will accommodate a variety of trail users.

Other Public Uses

Visitors will have the opportunity to bike and ride horses on some of the Refuge’s multi-use trails. Although biking and equestrian uses are not priority public uses, they will provide means for visitors to access the Refuge’s interior to observe wildlife and explore the prairie landscape.

Biking will be allowed on all multi-use trails, but equestrian use will be limited to the multi-use trails in the southern half of the site. The southern multi-use trails will provide equestrians with links to adjacent trail systems in Westminster, Broomfield and Arvada.

Off-trail use will be permitted seasonally in the southern half of the Refuge. Off-trail use will provide visitors with increased opportunities to view wildlife and to explore the grasslands.

Facilities

Facility development will carefully balance opportunities for visitors to explore the prairie with habitat conservation. Facility development will include trails, trailheads (with portable restrooms) overlooks, information kiosks, viewing blinds, contact station (with restrooms) and parking areas.

For the first 5 years of Refuge establishment, the site will only be open to the general public at scheduled times and one trail (1.75 miles) to Lindsay Ranch will be open to pedestrians. The initial trail will extend from the parking

area to the Rock Creek overlook and make a loop within the Rock Creek drainage.

Outlined below are all facilities that will be developed and open to the public 5 years after the Refuge is established:

- **Trails:** Approximately 12.8 miles of multi-use trails and 3.8 miles of pedestrian-only trails will be developed. The majority of the trails will follow converted road corridors away from riparian areas. Trails within the Rock Creek drainage and other sensitive areas will be subject to seasonal closures as needed to protect wildlife. Looped pedestrian-only and multi-use trails as well as connections to adjacent trail systems will accommodate a variety of trail users.
- **Kiosk:** Within a kiosk located outside the contact station, visitors will find maps of the trail system, rules and regulations, and information on Refuge wildlife and habitat. The kiosk will consist of three sign panels hung on a wooden structure. The kiosk will be accessible to all visitors when the contact station is closed. During the early years of refuge establishment when access is limited and before development of the contact station,

the kiosk will provide information on current and future public use opportunities.

- **Equestrian Uses:** Only multi-use trails in the southern portion of the site will be open to equestrian uses. Hitching posts will be located near the contact station, allowing equestrian users to hike to Lindsay Ranch.
- **Trailheads:** All entries to the Refuge trail system will be posted with signage that clearly demarcates the visitor's entry into a National Wildlife Refuge.
- **Overlook:** Three overlooks will provide views of the site and the outlying landscape. The overlooks will be simple and designed to fit into the prairie landscape. They will likely entail a graded, gravel area sited for its nearby and distant views. The Rock Creek and Highway 128 overlooks will feature interpretive sign panels. Benches at the Woman Creek and Rock Creek overlooks will provide a resting point for visitors.
- **Blinds:** Wildlife viewing blinds will be sited to optimize observation opportunities. The blinds will be designed to blend in with the surrounding landscape and minimize disturbances to wildlife.
- **Parking:** Four parking areas (spaces for about 54 cars and one bus) will be constructed. The largest parking lot (30 spaces) will be located at the entry drive terminus and adjacent to the contact station. This main parking area will be designed to accommodate horse trailers. An additional parking lot (20 spaces) will be situated on the site's northern edge with convenient access from Highway 128. Pull-offs along the main access road, south of the visitor contact station, and along Indiana Street will provide additional parking spaces (3 to 4 spaces each) for visitors using trails in the southern portion of the Refuge. All parking areas will be gravel and enclosed by a post and beam fence.

- **Restrooms:** Restrooms will be located near and/or within the visitor contact station.
- **Contact Station:** A small structure (approximately 750 to 1,000 square feet) will house an interpretive display and staff office space. The contact station will be the primary orientation point for visitors where they will collect information about the Refuge. The station also will serve as the meeting ground for guided tours and other Refuge programs. Located outside the main parking area, the contact station will be staffed seasonally (e.g., weekends from May through October), to provide visitor contact with Refuge staff.

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The Refuge could become a popular destination for wildlife enthusiasts, naturalists and students within the Denver metropolitan area.

4.2. OBJECTIVES AND STRATEGIES

The objectives and strategies are the specific actions that the Service will implement to achieve the goals of the Refuge. An objective is a general statement about what the Service wants to achieve on the Refuge, while a strategy is a specific action, tool, technique or combination of the above used to meet objectives. The objectives and strategies are arranged by the six goals discussed in Chapter 1. Several goals were subdivided into topics. For example, Goal 1 addresses wildlife and habitat management. Objectives and strategies within this goal were developed for species reintroduction, deer and elk management, prairie dog management and other topics.

Table 8 at the end of this chapter provides a detailed summary of all the objectives and strategies.

GOAL 1. WILDLIFE AND HABITAT MANAGEMENT

Conserve, restore and sustain biological diversity of the native flora and fauna of the mountain/prairie interface with particular consideration given to threatened and endangered species.

The Refuge supports about 250 species of wildlife and several rare or sensitive plant communities. While some of these species and communities have specific management requirements that are directly addressed in the following objectives, there are many others that are not specifically addressed. These include animals such as the short-horned lizard and red-tailed hawk and rare plants such as the tall upland shrubland community and forktip three awn. The Service will address these species and communities by focusing on sustaining and improving the habitat conditions that support their life processes. For example, the protection and improvement of Preble's meadow jumping mouse habitat (Objective 1.1) will benefit many other species that depend on riparian areas for survival, as well as wetlands and the tall upland shrubland community. Weed management strategies (Objective 1.5) will improve habitat conditions for numerous grassland-dependent species, including the short-horned lizard, various ground nesting birds and small mammals, and some rare plants such as the forktip three awn.

While it is not outlined specifically in the objectives, the Service will continue to informally monitor general wildlife populations and rare plant communities on the Refuge. In addition, the Service will work with CDOW, the Colorado Natural Heritage Program, area universities and other partners to ensure that general wildlife and rare plants that are not directly addressed in the objectives are protected and managed on the Refuge.



Preble's meadow jumping mouse is a threatened species found on the Refuge.

Objective 1.1 - Preble's Habitat Management

Background

As the only known federally listed species that resides on the Refuge, it is the Service's responsibility to protect and conserve the threatened Preble's meadow jumping mouse and its habitat. The life history of this species has not been studied thoroughly. What has been gleaned from habitat studies is that the species is a habitat specialist relying on well-developed shrub-dominated riparian vegetation. Not only riparian areas are utilized; upland shrub and grasslands provide travel corridors, nest sites and forage. The replacement of native vegetation by noxious weeds and excessive grazing is shown to reduce the quality and quantity of suitable Preble's habitat (Compton and Hugie 1993).

Objective

Beginning in the first year and throughout the life of the CCP, protect Preble's habitat, maintaining and improving approximately 1,000 acres of Preble's habitat on the Refuge.

Rationale: The Service will place a priority on the protection and improvement of riparian, wetland and adjacent grassland habitat that have the potential to support Preble's. Preble's have evolved with grazing and browsing by ungulates, especially deer, and under normal circumstances should not be impacted by ungulate behavior. If, however, Refuge deer become overpopulated, over grazing/browsing within riparian areas has the potential to adversely affect Preble's habitat in isolated areas.

Strategies:

1.1.1 - Establish permanent transects in each stream drainage and survey these transects every 2 to 3 years

for the presence/absence and abundance of Preble's using live-traps in linear transects parallel to the stream, recording dominant vegetation type at trap locations (Kaiser-Hill 2001; Burnham et al. 1980). Establish exclosures to determine a baseline level of browsing and grazing.

1.1.2 - Allow natural revegetation of native species on lightly used roads in Preble's habitat including unimproved stream crossings.

1.1.3 - While the species is under the consideration of the ESA, consult with the Service's Ecological Services field office on actions potentially adversely affecting Preble's.

1.1.4 - Develop habitat-sensitive weed management strategies for use in Preble's habitat areas.

1.1.5 - Control noxious weeds in Preble's habitat to prevent an increase in weed distribution and density using IPM tools (biological, mechanical, chemical applications and limited prescribed fire).

1.1.6 - If necessary, protect Preble's habitat by using fencing and ungulate population control to exclude grazing/browsing animals if the quality of the habitat is threatened.

1.1.7 - Seek partnerships and funding for the performance of biannual surveys for the presence and distribution of Preble's in areas where existing and proposed Refuge recreational trails cross Preble's habitat using live-trapping in grid patterns that encompass the stream and uplands. Record level and type of recreation use in the Preble's survey areas.

1.1.8 - Manage for species recovery as indicated in the Service Recovery Plan (in draft 2003).

Objective 1.2 - Xeric Tallgrass Management

Background

Xeric tallgrass prairie is a rare vegetation community type that will be protected, maintained and restored in suitable locations. Tallgrass prairie evolved with the natural processes of fire and grazing, which are important in supporting and invigorating the prairie ecosystem. The disruption of these natural processes renders the prairie community prone to the establishment of noxious weeds that often out-compete native plants. Infested native plant communities are reduced in their capacity to support native wildlife populations. A variety of techniques are needed to restore healthy, balanced native communities. IPM

involves using techniques that simulate natural processes and could include: prescribed fire; revegetation with native species; mechanical control methods such as mowing, root grubbing and hand pulling; chemical applications; grazing; and biological agents.

As IPM tools, prescribed fire and grazing are useful in helping to control weeds, reduce plant litter, recycle nutrients and improve the overall health and vigor of the native grasslands. Prescribed fire will be conducted considering state air quality regulations, ecological timing (to maximize benefits to desirable species and effectiveness in controlling weed species), weather conditions and operational logistics. Grazing for ecological restoration purposes will likely consist of managed cattle for short periods of time to simulate natural processes and invigorate native grasses (grazing for the specific purpose of weed control is typically conducted using goats). Monitoring of these treatments and their effectiveness will allow the Service to adapt and alter techniques to improve long-term effectiveness.

Objective

By year 15, manage the existing extent (about 1,500 acres) of the xeric tallgrass prairie across the Refuge to achieve an average relative cover of no less than 60 percent (± 4 percent) native grasses and 10 percent (± 5 percent) forbs, with no more than 10 percent of the average cover to be invasive non-native species. Maintain the total number of native species to be at least 80 percent of the about 285 plant species that have been identified in the tallgrass community prior to Refuge establishment.

Rationale: Management focus will be on maintaining and improving the 1,500 acres of xeric tallgrass across the site from the conditions that existed at the time of Refuge establishment. IPM techniques, as described in Objective 1.5 - Weed Management, will be used to maintain the native composition of species in the xeric tallgrass communities. While the number of plant species within the community fluctuates annually according to climactic conditions, a total of about 285 species are consistently found within this community. Not meeting the objective as stated above does not necessarily indicate the xeric tallgrass is critically imperiled but will warrant a more thorough investigation. Prescribed fire will be conducted Refuge-wide to stimulate native plant growth, reduce plant litter and help control weeds in the xeric tallgrass community.

Strategies:

1.2.1 - Within 2 years, produce a long-term vegetation management plan that identifies detailed strategies for weed management, restoration and xeric tallgrass prairie

species composition to be attained by the end of the CCP.

1.2.2 - Throughout the growing season, conduct informal monitoring of grasslands for noxious weeds.

1.2.3 - At a minimum, every 3 years survey selected vegetation point intercept transects to determine ground cover, vegetation density, species and species richness, document effectiveness of weed control, assess impacts of disturbance on plant communities, track ratio of warm season to cool season species and provide overall assessment of the status of the tallgrass community (Kaiser-Hill 1997; Owensby 1973).

1.2.4 - Use prescribed fire in conjunction with other restoration tools such as grazing, mowing, herbicides and biological controls to simulate natural processes that once existed at Rocky Flats.

1.2.5 - Participate in regional efforts to implement tallgrass prairie conservation measures.

1.2.6 - Suppress all wildfires.

1.2.7 - Use prescribed fire in areas identified in Figure 18. Prescribed fire may be used in grassland areas at a average frequency of 5 to 7 years (riparian areas 5 to 10 years). These can occur for two years in a row but not less frequently than once every 10 to 12 years. Burn areas will average about 200 to 500 acres per year of both xeric and mixed grasslands and portions of riparian communities across the site.

1.2.8 - Use grazing in areas identified in Figure 18. Grazing on a specific grassland area will be limited to short duration with high animal numbers (flash grazing for an average of 2 weeks) as identified in the Vegetation and Wildlife Management Plan. Temporary paddocks with electric fencing will be used to contain livestock in specific areas.

1.2.9 - Monitor ecological conditions before and after the application of any specific restoration tool.

1.2.10 - In accordance with Objective 3.2 - *Visitor Safety*, close the Refuge to all public use prior to and during the use of prescribed fire on the Refuge.

Objective 1.3 - Mixed Grassland Prairie Management

Background

Nearly one half of the Refuge is vegetated with shortgrass prairie communities, including mesic mixed grassland, xeric needle and thread grassland, short grassland, and reclaimed mixed grassland. While these communities are habitat for a variety of wildlife species on the Refuge, the Service has not outlined very many specific management

strategies for the mixed grassland prairie at the Refuge. Instead, management strategies that are important to these prairie communities, including managing weeds, managing prairie dogs, restoring unused roads and sustaining habitat for introduced species, are covered under other wildlife and habitat management objectives. However, because many native wildlife species rely on diverse habitat components that are not present in agricultural fields, hay meadows, or a monoculture of plant species, the Service has outlined specific management strategies related to restoration of these areas. Maintenance and enhancement of these mixed grassland prairie communities is integral to other, more specific objectives.

As outlined in Objective 1.5 - *Weed Management*, a variety of IPM tools, including managed grazing and prescribed fire, will be used to maintain the health and integrity of the mixed grassland prairie communities. Prescribed fire will be conducted considering state air quality regulations, ecological timing (to maximize benefits to desirable species and effectiveness in controlling weed species), weather conditions and operational logistics. Grazing for ecological restoration purposes will likely consist of managed cattle for short periods of time to simulate natural processes and invigorate native grasses (grazing for the specific purpose of weed control is typically conducted using goats). Monitoring of these treatments and their effectiveness allows for adaptation and alteration of techniques to improve long-term effectiveness.

Objective

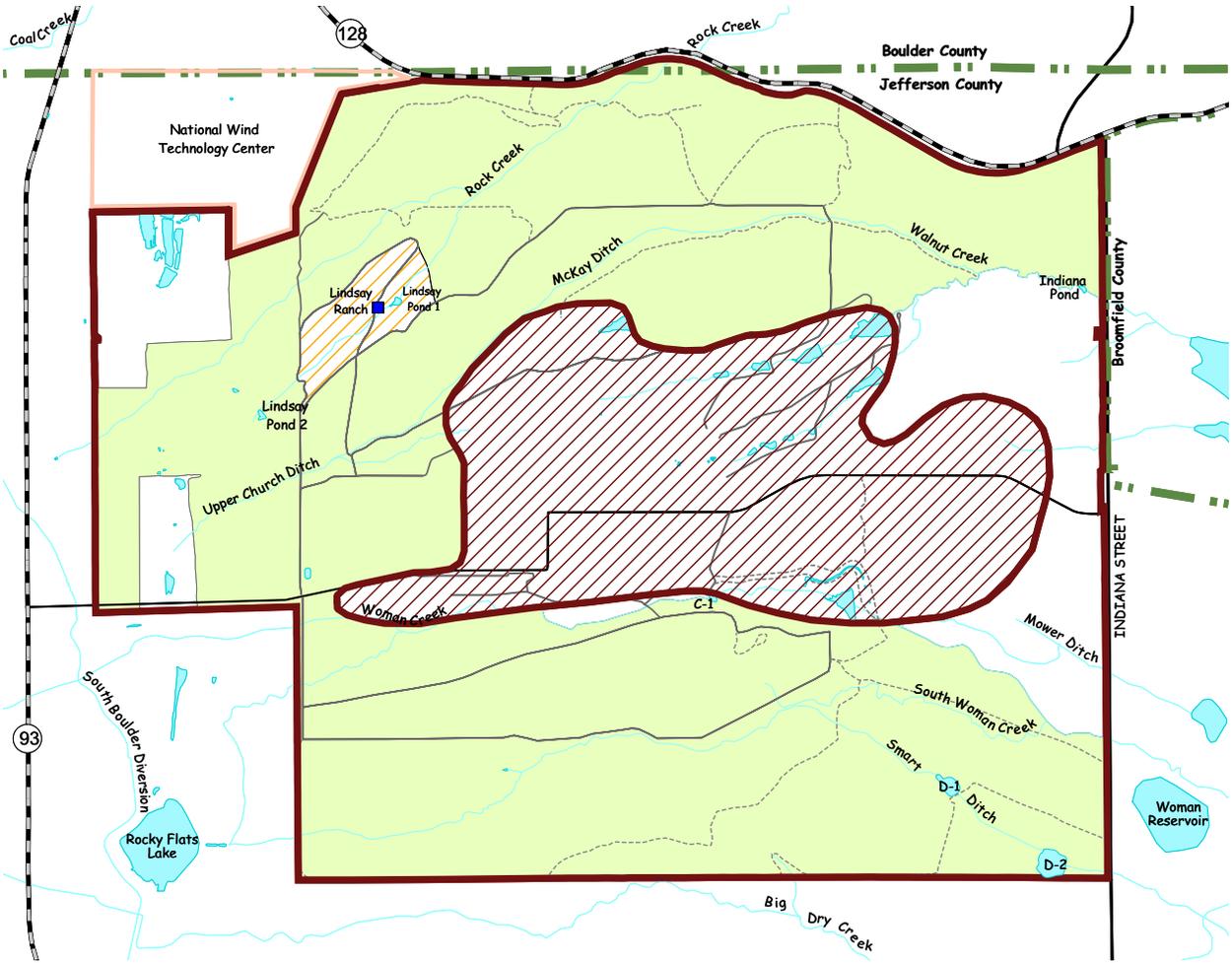
Through the life of the CCP, maintain and improve the vigor and native species composition of short and mesic mixed grassland habitat according to the management objectives for weed management, prairie dog management, habitat restoration and species reintroduction. Additionally, restore 300 acres of non-native grassland in the southeast corner of the Refuge (hay meadow), as well as other reclaimed grassland areas, to a native mixed grassland community.

Rationale: The mixed grassland prairie communities at the Refuge provide habitat for a variety of wildlife species. The Service will restore non-native grassland areas, including the hay meadow, to improve the diversity of habitat for a variety of species. In addition, the mixed grassland prairie communities will be managed according to the specific purposes of other objectives. Prescribed fire will be conducted Refuge-wide to stimulate native plant growth, reduce plant litter and help control weeds in the mixed grassland prairie communities.



US Fish & Wildlife Service

Rocky Flats National Wildlife Refuge Jefferson County, CO



Prescribed Fire and Grazing

- Areas Where Prescribed Fire and Grazing May Be Used
- Areas Where Grazing Only May Be Used
- DOE Retained Area (Subject to Change)



Figure 18. Prescribed Fire and Grazing Areas

Strategies:

1.3.1 - Use IPM strategies to control or reduce noxious weed infestations and maintain or improve the vigor of native short and mesic grassland according to Objective 1.5 *Weed Management* and Objective 1.4 - *Road Restoration and Revegetation*.

1.3.2 - Allow short and mesic grassland communities to support prairie dog expansion, according to Objective 1.7 - *Prairie Dog Management*.

1.3.3 - Maintain short and mesic grassland communities as needed to support the reintroduction of sharp-tailed grouse or other species, as directed under Objective 1.8 - *Species Reintroduction*.

1.3.4 - Suppress all wildfires.

1.3.5 - Use prescribed fire in conjunction with other restoration tools such as grazing, mowing, herbicides and biological controls to simulate natural processes that once existed at Rocky Flats.

1.3.6 - Restore non-native reclaimed grasslands in the hay meadow and other areas to a native mixed grassland community.

1.3.7 - Use prescribed fire in areas identified in Figure 18. Prescribed fire may be used in grassland areas at an average frequency of 5 to 7 years (riparian areas 5 to 10 years). These can occur for two years in a row but not less frequently than once every 10 to 12 years. Burn areas will average about 200 to 500 acres per year of both xeric and mixed grasslands and portions of riparian communities, across the site.

1.3.8 - Use grazing in areas identified in Figure 18. Grazing on a specific area will be limited to short duration with high animal numbers (flash grazing for an average of 2 weeks) as identified in the Vegetation Management Plan. Temporary paddocks with electric fencing will contain the livestock in specific areas.

1.3.9 - Monitor ecological conditions before and after the application of any specific restoration tool.

1.3.10 - In accordance with Objective 3.2 - *Visitor Safety*, close the Refuge to all public use prior to and during the use of prescribed fire on the Refuge.

Objective 1.4 - Road Restoration and Revegetation**Background**

Currently about 70 miles of roads occur at the Refuge (of which about 20 miles will remain under DOE's jurisdiction). The removal and revegetation of extraneous roads will provide more wildlife habitat and reduce the

effects of fragmentation. Fragmentation results from roads, trails and other disturbances interrupting continuous habitat with unsuitable and possibly hostile environments. Fragmentation can affect plants and animals, resulting in the isolation of populations or individuals, reduction of genetic diversity, reduction of carrying capacity and other effects. Roads provide corridors for predators and are prone to weed infestations. Abrupt vegetation changes at road edges alter light, temperature and wind exposure. Revegetation and the restoration of natural contours, either by natural succession or mechanical grading, will increase the quality and quantity of native wildlife and plant habitats.

The Service will retain about 25 miles of roads for maintenance, fire control, utility and ecological monitoring access. In some cases, the roads will also be used as trails. Unless designated otherwise, access roads will be closed to public use.

Objective

Beginning in the first year and completed within the life of the CCP, revegetate approximately 26 miles of unused roads with 13 stream crossings. This will include about 7 miles of xeric tallgrass habitat and about 11 miles of mixed grassland prairie.

Rationale: Roads across the Refuge that are not being used for public use, fire protection, or maintenance access, will be restored and revegetated, while others will be narrowed to the width of a trail.

Strategies:

1.4.1 - Allow natural revegetation of native species on lightly used roads and unimproved stream crossings, in areas not dominated by weeds.

1.4.2 - In select locations, prepare (including soil prep, culvert removal, fill, regrading to match original contours, herbicide application) and seed roadways and uplands with native species appropriate to soil type, slope and aspect.

1.4.3 - Where suitable, revegetate stream crossings with woody riparian species.

1.4.4 - Informally survey roadways for noxious weeds during the growing season and apply IPM techniques.

1.4.5 - Work with the Service's Ecological Services office and other agencies for ESA consultation and necessary permits in Preble's habitat and wetlands and adjacent buffer zones.

1.4.6 - Every 3 years survey restored habitat areas along selected vegetation point intercept transects to determine ground cover, vegetation density, species

and species richness; document effectiveness of weed control; assess impacts of disturbance on plant communities; and provide overall assessment of the vegetation community and restoration success (Kaiser-Hill 1997; Owensby 1973).

Objective 1.5: Weed Management

Background

Noxious weeds are nonnative plant species that invade an area that has been disturbed or where vegetation is stressed. Noxious weed infestations reduce the capacity of native plant communities to support wildlife populations and a diversity of organisms. Soil disturbances and cessation of the natural processes such as fire and grazing have resulted in a proliferation of noxious weed species at Rocky Flats.

IPM involves techniques that simulate the processes that contribute to the integrity of the ecosystems and can be applied when conditions are optimum for greatest effectiveness: prescribed fire; revegetation with native species; mechanical methods of mowing, root grubbing and hand collection; chemical applications; and biological agents. Depending on the location and treatment, controlled grazing by goats or cattle can be used as ecological restoration tools (as discussed in Objective 1.2 - *Xeric Tallgrass Management*) or for weed management purposes.

Monitoring the effectiveness of treatment allows adaptation and alterations of techniques to improve long-term effectiveness. Diffuse knapweed and Dalmatian toadflax are the principal threats to the grasslands, while Canada thistle threatens wetlands and riparian areas. Weed management efforts will seek to prevent the spread of existing infestations and the establishment of new ones.

In accordance with the Colorado Noxious Weed Act, the control of “list B” noxious weed species such as Diffuse knapweed, Dalmatian toadflax, and Canada thistle will be prioritized over the control of “list C” species such as field bindweed and jointed goatgrass. Biological controls will be planned to minimize potential impacts to native species.

Objective

Reduce the density of diffuse knapweed and Dalmatian toadflax populations by 15 percent within the first 5 years, 30 percent within 10 years and 60 percent within 15 years (as described in Kaiser-Hill 2002). Reduce the density and spread of other noxious weed species, especially Canada thistle by 50 percent within 15 years. Limit and control the establishment of weed species (Jefferson County, Boulder County and State of Colorado weed lists) not yet observed on the Refuge.

Rationale: The full range of IPM tools, including chemical, biological and mechanical control, prescribed

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Prescribed fire will occur in designated areas outside of DOE-retained lands.

fire and grazing, will be available to reduce noxious weed concentrations throughout the Refuge. Prescribed fire will be subject to an approved fire management plan and state air quality regulations. Grazing also will be subject to an approved plan. Burning along fence lines will reduce seed spread of noxious weeds, and the removal of plant litter will reduce the amount of herbicide that will be required to control weed infestations in that area.

Strategies:

1.5.1 - Employ an IPM approach to include the application of herbicides to perimeters of knapweed and toadflax patches to prevent their spread. Redistribute established biological control agents across the Rock Creek drainage and continue releases. Rake along fence lines and dispose of all tumbleweeds. Grub and handpull where needed.

1.5.2 - Annually identify and map weed patches using a Global Positioning System (GPS) to demarcate the areal extent and relative severity of infestations. Map treatment sites and monitor for efficacy in subsequent growing season.

1.5.3 - Correlate weed management with prairie dog management to minimize weed infestations in prairie dog expansion areas.

1.5.4 - Develop a comprehensive IPM plan.

1.5.5 - Conduct annual informal survey for new infestations during the growing season, focusing on roadways, trails, restoration areas and disturbed sites.

1.5.6 - If necessary, establish temporary interior fencing in areas where weeds are wind dispersed to collect weeds and limit dispersal. Burn along fence lines and dispose of all tumbleweeds.

1.5.7 - Use managed grazing of goats, or other livestock as appropriate for short periods to control weed infestations and simulate natural grassland processes.

Objective 1.6: Deer and Elk Management

Background

CDOW has primary responsibility for the management of deer and elk herds throughout the state and cooperated with the DOE for wildlife management at Rocky Flats before Refuge establishment. CDOW strives to set population levels at 80 percent carrying capacity, but the Service believes that setting a target population level for the Refuge will provide for better management of the ungulate population and will present fewer difficulties in

determining what the carrying capacity should be. The resulting target population level may be lowered if degradation is occurring in Preble's habitat (riparian and upland shrubs). Continued cooperation with the CDOW will provide continuity in management, sharing of resources and provide larger habitat areas for deer and elk. Management of deer and elk populations is necessary to maintain the health of the herds and prevent the degradation of sensitive habitats such as riparian woodlands and shrublands.

Objective

Within 3 years, establish deer and elk population targets to be achieved by year five. Adverse effects to Preble's or other federally endangered or threatened species and their habitats may necessitate reduced population target levels.

Rationale: A public hunting program may be all that is necessary to control the herd size; however, additional culling by Refuge staff and CDOW, or keeping the herd away from sensitive habitat areas with exclosures or temporary fencing may be required. The Service will correlate the establishment of population targets with the public hunting program to maximize the utility of hunting as a management tool and to ensure that it does not adversely impact populations.

Strategies:

1.6.1 - Coordinate and assist CDOW to monitor and manage populations through a public hunting program, culling by Refuge or CDOW personnel, or temporary exclosures.

1.6.2 - Assist CDOW in establishing target populations for deer and elk on the Refuge.

1.6.3 - Every 2 years monitor for ungulate induced degradation using multiple methods for foliage density, foliage height diversity and plant species diversity (Anderson and Ohmart 1986) in the riparian woodlands, riparian and tall upland shrub communities in Preble's habitat.

1.6.4 - Perform annual deer and elk relative abundance or relative density study by direct count.

1.6.5 - Establish permanent vegetation photo points in riparian and upland shrubs and use them to monitor for excessive habitat degradation by ungulates every 2 years. Establish exclosure plots to determine the extent of browsing.

1.6.6 - Work with other agencies to protect movement corridors between the Refuge and nearby habitat areas.

Objective 1.7 - Prairie Dog Management

Background

Prairie dogs are important components in the short and mesic grasslands systems. They are commonly considered a “keystone” species because their activities (burrowing and intense grazing) provide food and shelter for many other grassland species. While black-tailed prairie dogs are no longer a candidate species for threatened status listing under the ESA (as of August 2004) the Service still has a strong interest in conserving the species and habitat where appropriate.

Rocky Flats contains about 2,460 acres of potential prairie dog habitat, based on an analysis of suitable soils, vegetation, and slope. While about 113 acres of prairie dog colonies have been identified in recent years, active prairie dog colonies at Rocky Flats currently comprise an area of about 10 acres. Thresholds for prairie dog expansion in the various alternatives are based on these existing conditions and the extent of potential habitat.

Objective

Allow prairie dog populations to expand up to 750 acres in areas of non-native grassland as well as short and mixed native grasslands outside of recognized Preble’s habitat across the Refuge

Rationale: Restoration is a key component of the CCP. The Service will manage for a sustainable prairie dog population that contributes to the overall function and integrity of the grassland communities and does not degrade other sensitive resources (such as wetlands, shrublands and xeric tallgrass prairie). With limited staff resources, it could be difficult to limit prairie dog expansion if they populate large areas, so it is important that the Service maintain a manageable prairie dog population on the Refuge. If necessary, the Service will try to limit the expansion of prairie dogs into sensitive areas that do not provide primary habitat for prairie dogs. Because human recreation is a significant component of Alternative B, plague control methods may be needed in prairie dog management to protect prairie dog colonies as well as Refuge visitors.

Strategies:

1.7.1 - If necessary, trap and relocate within the Refuge, or use other methods to exclude prairie dogs from Preble’s habitat and xeric tallgrass throughout the Refuge.

1.7.2 - Use intra-Refuge relocation as required.

1.7.3 - Do not accept prairie dogs from off-Refuge relocation projects.

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The Service will manage for a sustainable prairie dog population that contributes to the function and integrity of the grassland communities.

1.7.4 - Cooperate with DOE’s stewardship designee to manage prairie dogs and exclude them from DOE retained lands with visual and vegetative barriers where necessary.

1.7.5 - Correlate prairie dog management with weed management efforts to minimize weed infestations in prairie dog expansion areas.

1.7.6 - Annually monitor and map the location, extent and distribution of prairie dog populations including densities and vegetation characteristics within prairie dog towns.

1.7.7 - Continuously monitor for plague and respond with flea control if appropriate.

Objective 1.8 - Species Reintroduction

Background

CDOW holds the primary responsibility for wildlife management in Colorado and cooperated with the DOE for wildlife management on Rocky Flats before Refuge establishment. CDOW, through a cooperative effort with City of Boulder, introduced a small number of plains sharp-tailed grouse just north of the Refuge on Boulder’s

open space land during spring 2003 and is interested in expanding the introduction of the grouse onto the Refuge. The Service worked with CDOW to introduce northern redbelly dace and the common shiner in Rock Creek during summer 2003.

Objective

Within 3 years of Refuge establishment, evaluate the suitability for introducing/reintroducing plains sharp-tailed grouse and other native species, prioritize the species that could be introduced/reintroduced during the life of the CCP and implement population monitoring of reintroduced species at least annually until populations are established.

Rationale: A full evaluation of Refuge habitat suitability is needed before introductions/ reintroductions are planned. Service staff will play an active role in evaluating the suitability of reintroduction efforts and will partner with CDOW to manage implementation. Population monitoring by Service staff will be implemented as necessary.

Strategies:

- 1.8.1 - Coordinate with and assist CDOW in evaluating the suitability of the Refuge for plains sharp-tailed grouse and other native species.
- 1.8.2 - Oversee and assist CDOW with species release, monitoring and habitat maintenance on the Refuge.
- 1.8.3 - Annually monitor native fish (northern redbelly dace and common shiner) in Rock Creek. If needed, reintroduce them in the Walnut Creek drainage and Woman Creek (provided suitable habitat exists), until successful establishment.
- 1.8.4 - If found suitable for introduction, during the first 2 years of the CCP, complete a management plan for the plains sharp-tailed grouse.

GOAL 2. PUBLIC USE, EDUCATION AND INTERPRETATION

Provide visitors and students high quality recreational, educational and interpretive opportunities and foster an understanding and appreciation of the Refuge's xeric tallgrass prairie, upland shrub and wetland habitats; native wildlife; the history of the site; and the NWRS.

Objective 2.1 - Visitor Experience

Within the first 5 years of the Refuge's establishment, the Service will initiate efforts to make Refuge visitors feel safe and will ensure that at least 75 percent of visitors will be informed about the cleanup effort undertaken prior to Refuge establishment.

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Wildlife observation and interpretation will help foster an understanding of wildlife and its habitat.

Rationale: Access to the Rocky Flats site has been highly restricted during both the nuclear production and the cleanup phases of the site's history. A substantial amount of public skepticism about the site's safety and a lack of familiarity with the site's resources are likely to hamper visitation. To ease public apprehension about the site, it will be crucial to ensure that visitors feel welcome, safe and comfortable. During focus groups about visitor use and outreach programs, specialists emphasized the importance of communicating with the public and explaining cleanup results and ongoing safety measures. One survey will be developed to measure all visitor experiences and will include questions related to use patterns, satisfaction and understanding of the resource (as referred to in objectives 2.1, 2.2, 2.3, 2.4 and 2.5).

Strategies:

- 2.1.1 - Provide a staff contact during peak seasons to welcome visitors and address safety concerns.
- 2.1.2 - Develop a survey designed to measure how safe visitors feel during their visit.

2.1.3 - Develop an outreach program that reaches beyond the site's boundaries and educates surrounding communities about the Refuge's safety and amenities.

2.1.4 - Use signage, staff contact, brochures, website and other means to convey safety information.

2.1.4 - Implement a volunteer program focused on helping the public and site visitors understand efforts that have been made to ensure the safety of site users.

2.1.6 - Keep surrounding communities including, but not limited to, Jefferson, Boulder and Broomfield counties, the cities of Westminster, Arvada, Boulder, Golden and Broomfield and nearby school districts informed about Refuge events and the progress of the CCP's implementation.

Objective 2.2—Public Access

By the end of 15 years, visitors will have opportunities to observe and photograph wildlife and to experience the Refuge's unique habitats, mountain and prairie views on foot, bike and horse. Satisfaction with their Refuge experience will be reported by 75 percent of visitors.

Rationale: One of the goals of the Refuge System is to foster an understanding of wildlife and its habitat by providing the public with safe, high quality, wildlife-

dependent public uses. The Refuge provides opportunities for the public to experience the unique xeric tallgrass prairie, upland shrub, wetland habitats and learn about the site's history and the NWRS. Trails and overlooks will be designed to allow visitors to experience the diverse areas of the site and expansive views of the mountain backdrop and the Denver/Boulder metropolitan area.

Off trail use will be allowed on a seasonal basis for pedestrian access only in the southern portion of the Refuge during specific times of the year (October-April). Limiting off trail use to the late fall and winter will limit impacts to ground nesting birds and deer fawning in the uplands. Off trail use will provide opportunities for amateur naturalists, wildlife photographers and others to access their subjects.

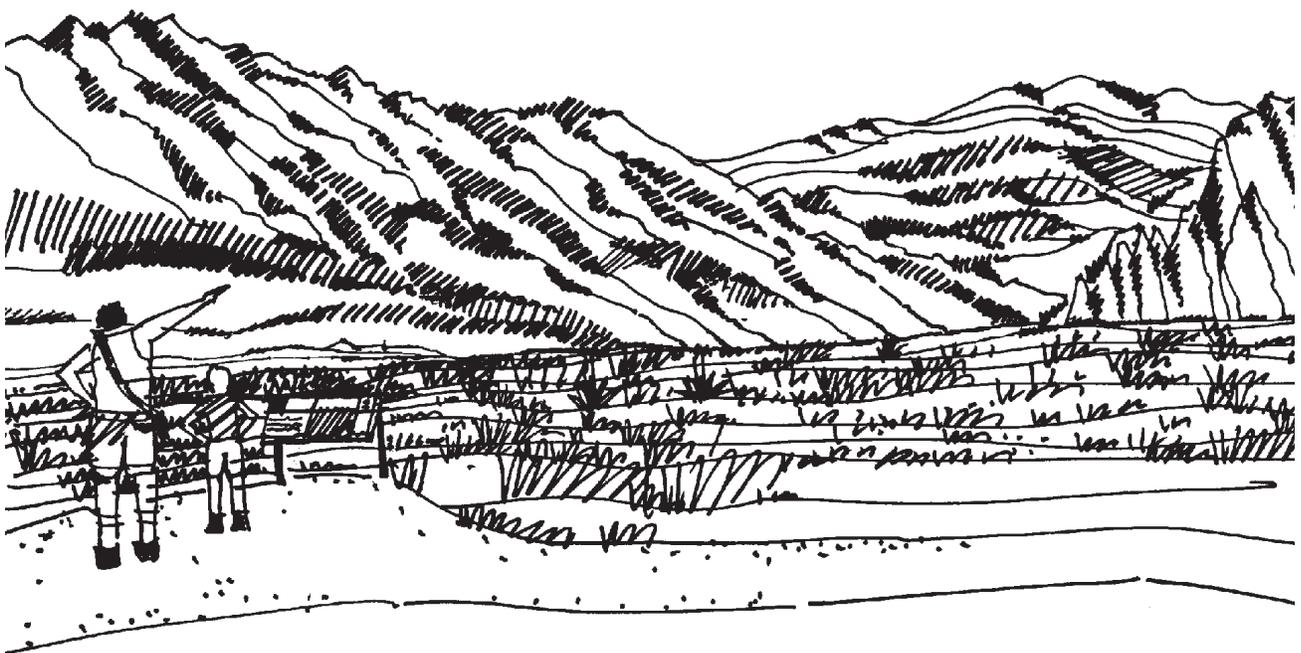
To protect Preble's and other wildlife habitat, closures in the Rock Creek area and other drainages will be instituted on an as needed basis. Overlooks, however, will remain open and provide views into the riparian areas. Dogs will be prohibited on the Refuge because they are permitted on nearby open spaces and pose a threat to wildlife resources.

Strategies:

2.2.1 - Develop and implement a survey that measures visitor satisfaction and use patterns.

2.2.2 - Do not permit dogs on the Refuge.

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Interpretive signage will be used to foster an understanding and appreciation of the National Wildlife Refuge System.

2.2.3 - Develop trails to provide multiple opportunities for viewing and photographing wildlife.

2.2.4 - Allow off-trail use in the southern portion of the Refuge (south of Woman Creek) between October and April.

2.2.5 - Establish seasonal trail closures in Rock Creek and other drainages as necessary to minimize impacts to wildlife. Keep portions of the rim trails open for viewing the riparian areas.

2.2.6 - Provide a seasonally staffed visitor contact station to inform visitors about the Refuge's resources and how to best experience the Refuge during different seasons.

2.2.7 - Open the Refuge to the public from sunrise to sunset.

2.2.8 - Maintain public access on the main access road only. Close all other roads to public access.

2.2.9 - Do not permit motorized vehicles on the Refuge except in designated parking/access areas, refuge maintenance access and access to utility easements, ditches, and private mineral rights.

Objective 2.3—Appreciation of the National Wildlife Refuge System

By the end of the CCP, 65 percent of visitors will understand and appreciate the NWRS, the purpose of the Refuge and the natural and cultural resources of the Refuge.

Rationale: Given the drastic shift in the use of Rocky Flats from nuclear weapons production to a wildlife refuge, the public is unfamiliar with the site's new mission and its natural resources. As people begin to feel safe and comfortable with accessing the Refuge, the Service will strive to foster public awareness and appreciation of the Refuge System and the purpose of the Refuge. The Refuge's proximity to urban areas presents a good opportunity to educate a large number of people about the NWRS and its role in conservation across the country.

Strategies:

2.3.1 - Include questions in the visitor surveys and questionnaires (strategy 2.2.1) that measure visitors' understanding of the NWRS and the Refuge's resources.

2.3.2 - Create the interpretive media and programs identified in the environmental education component of the Visitor Services Plan, a step-down plan that will outline visitor services in more detail than the CCP.

2.3.3 - Work with outside partners to ensure visitors understand the Refuge's natural and cultural resources. Potential partners include the CDOW, surrounding city and county environmental education entities (government, non-profit and profit), Cold War Museum, Boulder and Jefferson County high schools and the State Historic Preservation Office.

2.3.4 - During peak seasons, provide adequate personnel to ensure that staff contact is available to visitors.

2.3.5 - Develop an interpretive signage system that educates visitors about the natural and cultural resources at the Refuge.

2.3.6 - Educate visitors about the National Wildlife Refuge System.

Objective 2.4—Public Use Tracking

Within the first year of the Refuge's establishment, open a pedestrian-only trail to Lindsay Ranch and monitor the number of visitors to the Refuge. During years 5 through 7, as more trails are opened, develop baseline data for numbers of visitors and their use patterns.

Rationale: The Refuge has not been open to the public; therefore, no visitor use data exists. Establishing quality baseline data is needed for future management decisions. A quantitative understanding of visitor activity (numbers of visitors, trail and use patterns) combined with an analysis of the quality of their experience will allow Service staff to enhance or limit visitor use opportunities.

Strategies:

2.4.1 - Develop a visitor use tracking system to measure the number of visitors. Use it in conjunction with a visitor experience survey to identify changes needed to improve the visitor's experience.

2.4.2 - Use trail or vehicle counters to record Refuge visitor numbers.

2.4.3 - Use the results of tracking to guide the design and planning of public use facilities and programs.

Objective 2.5—Public Use Assessments

By the end of the CCP, 25 percent of visitors will demonstrate an appreciation of the Service's stewardship mission and will have the desire to apply the conservation ethic to their own lives and share it with others.

Rationale: The goal of interpretation and environmental education is to foster an understanding and appreciation for natural processes that inspires people to behave in a more environmentally conscious manner. In addition to

providing on-site recreation and education opportunities, the public use program will strive to inspire citizens to become better land stewards in their own communities and stronger advocates for the Refuge system. This objective is in keeping with the goals of the System that promote establishment of a greater appreciation of fish, wildlife and plants and their conservation.

Strategies:

2.5.1 - Develop survey questions that gauge visitors understanding and appreciation of natural resources, stewardship and environmentally sensitive ethics.

2.5.2 - Distribute the survey, on and off-site, every 5 years (twice during the life of the CCP). Distribute the survey over the course of a year to ensure that feedback is collected during all four seasons.

2.5.3 - Design simple, low cost methods of gathering change of behavior data (e.g., web, volunteers, environmental education students).

2.5.4 - Use survey data to guide interpretive and educational program development as well as public outreach.

Objective 2.6—Interpretative Planning

Within 4 years of the Refuge’s establishment, develop the interpretive component of a Visitor Services Plan outlining interpretive facilities and programs.

Rationale: An interpretive plan will be prepared as a component of an umbrella Visitor Services Plan. The interpretive plan will focus on creatively and accurately informing visitors and students about the new Refuge. The first step will be to communicate about the site’s history and safe opportunities for access. During the early years of the Refuge’s establishment, it also will be important to inform the public about the Refuge’s wildlife, natural resources and scenic values and encourage people to visit the site. Gradually, the Service will need to develop and implement comprehensive interpretation programs that build an appreciation for the intricacies of the site’s natural systems.

Strategies:

2.6.1 - Work with outside partners to develop the interpretive component of the Visitor Services Plan. Potential partners include CDOW, surrounding city and county environmental education entities (government, non-profit and private), Cold War Museum, Boulder and Jefferson county high schools and the State Historic Preservation Office.

Objective 2.7—Interpretative Programs

Within 15 years of the Refuge’s establishment, implement the interpretive component of the Visitor Services Plan. Implementation will include the development of a wide range of interpretive programs and facilities.

Rationale: An interpretive plan will be prepared as a component of an umbrella Visitor Services Plan. The interpretive plan will be developed by Refuge staff and will describe interpretive as well as environmental education programs and related facilities. Initially, interpretation efforts will focus on providing information related to visitor comfort and safety. During later years of the CCP implementation, the focus will shift to the development of site-related interpretive programs and facilities. The range of programs and facilities will include guided tours about native flora and fauna, interpretive signage with both cultural and natural themes and overlook structures.

Strategies:

2.7.1 - Develop interpretive programs that explore the site’s natural and cultural resources and are accessible to children and adults.

2.7.2 - Distribute interpretive media (newsletter, flyers, website) in accordance with outreach techniques outlined in the Visitor Services Plan.

2.7.3 - Develop interpretive facilities including interpretive signage and interpretive displays.

Objective 2.8—Environmental Education Planning

Within 5 years of the Refuge’s establishment, develop a plan outlining on- and off-site environmental education programs for high school and college-level students as well as training for educators.

Environmental education programs will meet state standards for learning, accommodate independent studies and tie to the mission of the NWRS and the site’s natural resources and history.

Rationale: In the Denver Metropolitan area, natural resource study sites are needed to accommodate high school and college level research. This need was identified by educators and interpretive specialists at an environmental education focus group in the fall of 2002 and is based on the Refuge’s proximity to the Colorado School of Mines and University of Colorado.

Specialists noted that there are several environmental programs for elementary and middle school children in communities surrounding the Refuge, but programs that provide opportunities for high school students to develop research skills through field study are limited. Since

high school and college students are more independent, the costs and staffing resources needed to develop these types of programs would be less than they would be for programs for younger students. Environmental education programs at the Refuge will be research oriented and will involve independent study and will therefore require only limited assistance and supervision from Refuge staff. The Service will, however, sponsor teacher workshops for local educators so they could effectively lead environmental education programs on the Refuge.

Given current public apprehension about the site's safety, an independent and off-site approach to environmental education is appropriate during the first 5 years of the Refuge's establishment. Although the educational program will focus on high school and college level students, limited on and off-site activities for visitors of all ages will also be included.

Strategies:

2.8.1 - Partner with area universities, high schools, the Cold War Museum and other educational institutions to develop the environmental education components of the Visitor Services Plan.

2.8.2 - Pursue environmental education grants in collaboration with area universities, high schools, the Cold War Museum and other educational institutions.

2.8.3 - Use website, email and other media to distribute information on refuge resources and data for student use.

Objective 2.9—Environmental Education Implementation

Within 8 years of the Refuge's establishment implement the environmental education components of the Visitor Services Plan and the program it outlines for high school and college level students.

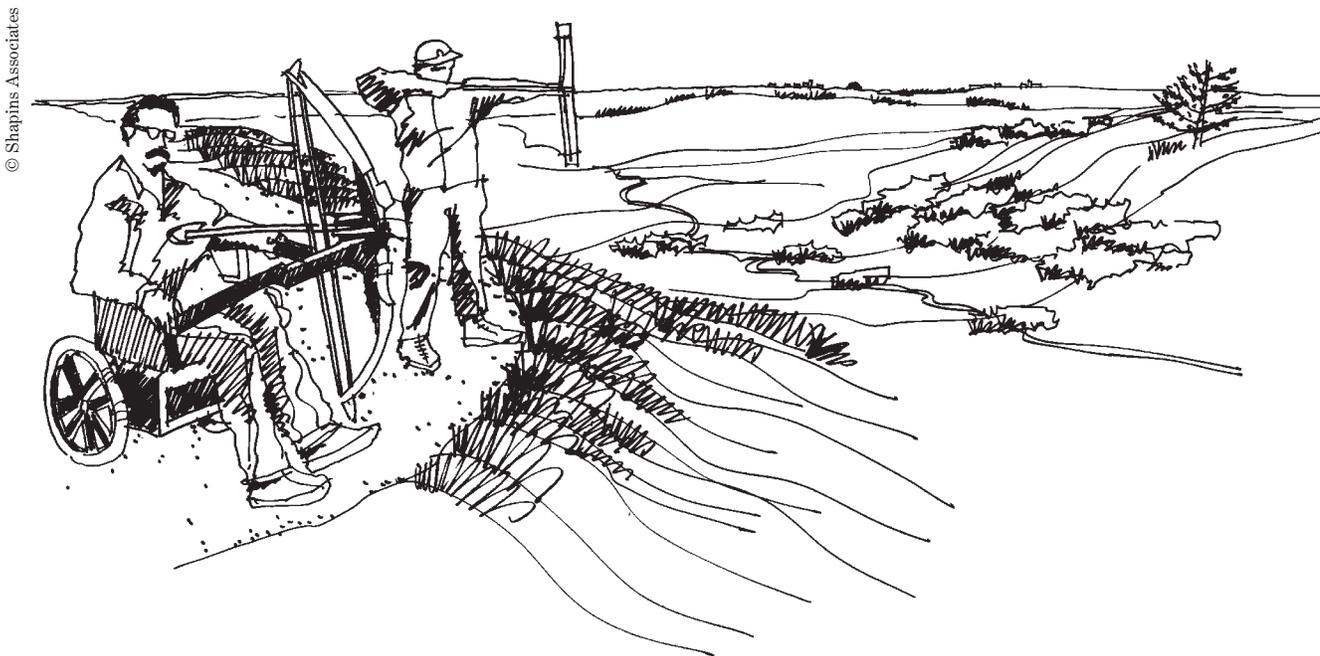
Rationale: Once the Refuge becomes established and the public becomes more comfortable with site visitation through public education and outreach efforts, the Refuge staff will begin implementing the plan. Education programs will adopt the state's model content curriculum standards and focus on the Refuge's natural resources. Implementation of the program will include teacher workshops in which Service staff train local educators about the Refuge's resources. Educators will be required to attend a Service-sponsored workshop prior to leading environmental education programs on the Refuge.

Strategies:

2.9.1 - Work with area universities, high schools, the Cold War Museum and other educational institutions to implement environmental education programs.

2.9.2 - Collaborate with area universities, high schools, the Cold War Museum and other educational institutions and pursue grants to support environmental education programs.

2.9.3 - Use a variety of media to distribute a wide range of data that can be used by high school and college students.



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Two weekends a year, deer and/or elk hunts will be organized especially for youth and/or people with disabilities.

2.9.4 - Sponsor teacher workshops in order to inform educators about the Refuge's resources and facilitate teacher-led environmental education programs.

Objective 2.10 – Hunting Program

Within the first 2 years of the Refuge's establishment, institute a controlled youth and/or disabled person's deer and/or elk hunting program 2 weekends a year. After 2 years, annually modify the extent of the hunting program (number of permits and frequency) in order to ensure that target level ungulate populations are maintained. If appropriate for wildlife management, expand the hunting program to include able-bodied hunters.

Rationale: Hunting is consistent with the Refuge System's mission and is identified as a priority wildlife dependent use on refuges (outlined in the Improvement Act). Hunting allowed on the Refuge will be subject to state regulations and safety requirements. Hunting will be highly controlled in terms of number of users, user populations, time frame and allowable weapons. Hunting will be limited to short-range weapons such as archery and shotguns and only open during designated weekends to youth and disabled hunters. There are very few hunting opportunities for these special populations in the region and they will benefit from the tightly managed program at the Refuge.

There have been concerns expressed from the public about the consumption of deer at Rocky Flats if a public hunting program is implemented. Tissue samples, including meat tissues, of deer harvested at Rocky Flats in 2002 have been analyzed for contaminants. The results of the analysis indicate that there is no significant uptake of contaminants by deer or other wildlife species at Rocky Flats. Risk-based calculations based on these measurements indicate very low health risks (less than 1×10^{-6} increased cancer risk).

Hunting will also be an important management tool for maintaining target ungulate populations and optimal habitat conditions. If the Service, in consultation with CDOW, determines that a larger hunting program is needed to control ungulate populations, the program will be opened to the general public and not limited to youth and disabled hunters. A step-down hunting plan would be prepared as a component of an umbrella Visitor Services Plan.

Strategies:

2.10.1 - By year 1, develop a hunting plan with public involvement.

2.10.2 - Work with the CDOW and other interested entities to develop and implement the hunting plan.

2.10.3 - During the hunting weekends, close the Refuge to other public use.

2.10.4 - Allow hunters with proof of completion of a certified hunter safety course to hunt using archery and shotguns.

Objective 2.11—Hunting Program Assessment

Following each hunting season, assess the success of the hunting program and adjust hunting opportunities as appropriate.

Rationale: Refuge management will need to monitor and evaluate the newly instituted hunting program and adjust the program based on ungulate population sizes, safety, adjacent communities support and hunter satisfaction (one survey will be developed to address objectives 2.11 and 2.12).

Strategies:

2.11.1 - Develop a survey for hunters, adjacent landowners and surrounding communities to measure their interest and support for the hunting program.

2.11.2 - Monitor deer populations and habitat conditions to understand the effects of the hunting program on wildlife and Refuge resources.

Objective 2.12—Hunting Program Benchmarks

About 95 percent of hunters will report no conflicts with other users, a reasonable harvest opportunity and overall satisfaction with their Refuge experience.

Rationale: Due to the limited number of hunters and the healthy resident deer population at the Refuge, it is likely that youth and disabled individuals will be afforded a quality hunting experience.

Strategies:

2.12.1 - Develop a brief survey for hunters in order to evaluate their Refuge experience (combined with survey used to measure objective 2.11).

2.12.2 - Staff interaction on a one-on-one with hunters.

Objective 2.13—Recreation Facilities

Within 1 year of the Refuge's establishment, begin development of the hiking trail to the Lindsay Ranch and

build an un-staffed welcome kiosk and simple restroom facilities at the open access point. By year 5, additional trails will be open to public use. By year 7, 75 percent of all recreation facilities including trails, portable restrooms at trailheads, and interpretive signage at key locations will be established. Parking (4 parking areas ranging in size from 3 to 30 spaces with the largest parking area at the main entrance accommodating horse trailers) will also be developed during this period. By year 15, develop 100 percent of the trail system, including connections to adjacent areas for pedestrians, cyclists and equestrians.

Rationale: Recreational facilities will provide public access to the Refuge's many natural and cultural resources. During the early years of the CCP implementation, the Service will focus staffing and budgetary resources on habitat restoration including revegetating unnecessary roads, weed management, and restoring stream crossings. This focus will allow the Service to reduce the severity of noxious weed infestations and gain a foothold on road restoration before public trail use introduces new disturbances onto the landscape. The Service will also need to conduct baseline Preble's surveys before opening the site to public use. Therefore, with the exception of the immediate opening of the Lindsay Ranch hiking trail and welcome kiosk, development of the recreation facilities will need to be postponed until year 5. The un-staffed welcome kiosk positioned nearby the Lindsay Ranch trailhead will inform visitors about current access opportunities and future public use facility development.

If early restoration efforts are effective and budgetary and staffing resources are available, the Service may initiate construction of new trails and the conversion of selected roads to trails before year 5 and, if feasible, may open some trails or portions of trails ahead of schedule.

Bicycles and horses will be permitted on multiple use trails in order to facilitate regional trail linkages and to serve as a mode of transportation for wildlife viewing and accessing the Refuge from surrounding communities. Certain trails will be designated for pedestrian use only. Trails will be designed to provide connections, use existing road corridors and minimize impacts to sensitive wildlife resources.

The unstaffed welcome kiosk will serve as a central information dissemination point at the main entrance to the Refuge. The simple structure will include orientation and interpretive panels to explain Refuge resources and public use opportunities. Eventually, the structure will be augmented with a seasonally staffed visitor contact station that will include permanent displays, administrative offices, Refuge orientation information

and educational materials.

Strategies:

2.13.1 - Construct an unstaffed welcome kiosk and portable restroom facilities within disturbed areas at the main parking lot and trailhead.

2.13.2 - Develop a universally accessible trail that links the main parking area to the Rock Creek overlook. Also provide an accessible mounting ramp for equestrian use.

2.13.3 - To provide a quality trail user experience, reduce reclaimed road widths to single lane, unpaved trails. However, maintain adequate width of trail corridors to allow them to also serve as access routes for maintenance or fire protection vehicles.

2.13.4 - Clearly mark all trails with signage indicating permitted uses.

2.13.5 - Prior to opening the Lindsay Ranch trail improve the trail corridor and conduct a Preble's survey.

2.13.6 - Where appropriate, use existing road corridors for trails to reduce negative impacts on site resources and site trails so they minimally impact habitat and provide a quality visitor experience.

2.13.7 - Realign road/trail corridors in specific areas with excessive slopes and/or sensitive wildlife habitat, or where wildlife viewing could be greatly enhanced.

2.13.8 - Designate some sections of the trail for pedestrian use only and create multi-use trails that permit bicycles and horses (equestrian use will be limited to the southern half of the Refuge).

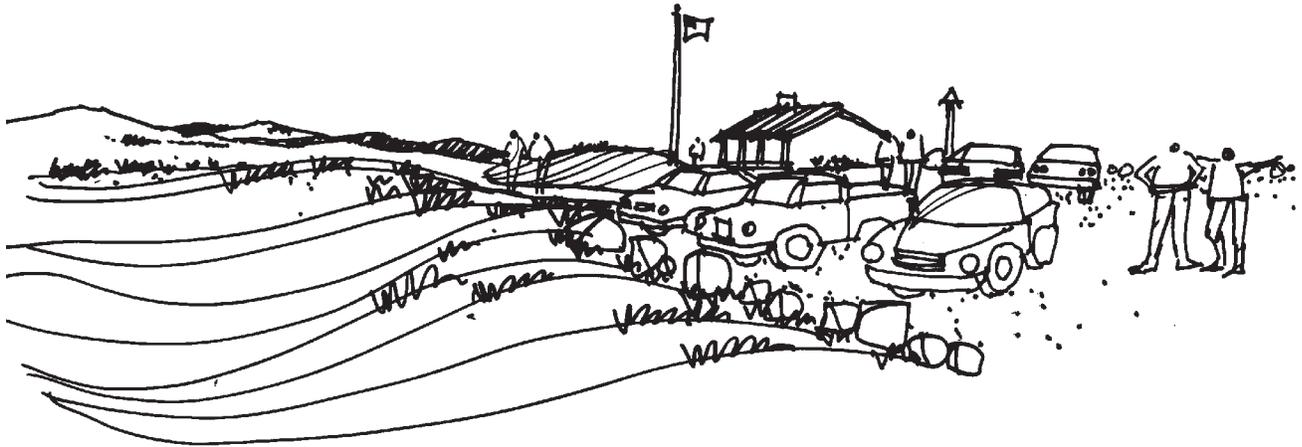
2.13.9 - Implement seasonal trail closures as needed to protect wildlife and their habitats.

2.13.10 - Use existing roads to provide motorized access to parking and trailheads. Make all motorized access and parking areas unpaved.

2.13.11 - Work with adjacent landowners on issues related to trail linkages to trail systems north, south, east and west of the Refuge.

2.13.12 - Work with neighboring landowners, agencies and the Colorado Department of Transportation (CDOT) to develop safe pedestrian crossings at all trailheads.

2.13.13 - Work with others to develop an underpass under Indiana Street if it is deemed necessary for safe pedestrian connections to trails and open space east of the Refuge.



Within 10 years of the Refuge's establishment, a small, seasonally staffed contact station will be built.

2.13.14 - Post signage at all trailheads that clearly communicates access opportunities as well as information about the site's history, recent clean up efforts, and differences in management between the Refuge and neighboring open space properties.

2.13.15 - Educate equestrian users on the importance of using weed-free hay and removing manure from trails.

2.13.16 - Work with equestrian groups and ensure that they remove horse manure from trails on a volunteer basis.

Objective 2.14—Enhanced Recreation Facilities

Within 10 years of the Refuge's establishment, enhance trails, construct a seasonally staffed contact station with upgraded restrooms, develop maintenance facilities and create additional interpretive panels.

Rationale: To bolster the quality of the visitor experience, additional resources will be expended on visitor use facilities in the later years of the CCP. A seasonally staffed contact station will be located in an existing disturbed area where it will not fragment wildlife habitat. The facility will allow for more visitor contact and provide a central location for information dissemination and interpretation.

Trail-related improvements will include upgrading trail surfaces, overlooks and interpretive signage. These improvements will reduce maintenance costs, enhance the quality of the visitor experience and reduce resource damage. Viewing blinds could be constructed to enhance photographic and wildlife observation opportunities.

Strategies:

2.14.1 - Build additional interpretive signs.

2.14.2 - Improve trail alignments, surfaces and overlooks to minimize resource impacts and improve the visitor experience.

2.14.3 - Routinely evaluate trail and public facility impacts and establish measures to minimize impacts on wildlife from trails and other visitor facilities and uses.

2.14.4 - Build a viewing blind to enhance wildlife observation opportunities.

2.14.5 - Construct a small (approximately 750 to 1,000 square feet), seasonally staffed contact station.

2.14.6 - If trail conflicts arise, use signage and expanded trail corridors on sections of trail where site lines are limited to divide equestrians from other trail users.

2.14.7 - If funding is available, position benches at strategic locations along certain trails and construct a limited limited number of shade structures.

Objective 2.15— Cold War Museum

If the Cold War Museum secures a site adjacent to the Refuge and funds to develop a museum within the life of the plan, the Service will partner to co-locate interpretive and other public use facilities with the organization.

Rationale: The Refuge Act (P.L. 107-107,sec.3181) (Refuge Act - Appendix A) states that the Secretary may establish a Rocky Flats Museum to commemorate the contribution that Rocky Flats and its work force provided to winning the Cold War. The legislation states that the museum shall be located in the City of Arvada unless the Secretary determines otherwise. Therefore, there is a

possibility that the facility will be constructed on land adjacent to the Refuge should it become available and be deemed appropriate.

Partnering with the Cold War Museum on the development of a museum presents an excellent opportunity for the Service to reduce the footprint of public use facilities on the Refuge. The shared facility will house the simple interpretive displays and staff office space originally intended for the contact station. The Cold War Museum would also be staffed seasonally by Refuge staff and serve as a meeting area for guided tours and other Refuge programs. Additionally, the Cold War Museum facility would present increased opportunities to interpret the the history of the site as ranchland and a nuclear weapons production facility.

Strategies:

2.15.1 - Continue working with the Cold War Museum to explore potential museum sites adjacent to the Refuge.

GOAL 3. SAFETY

Conduct operations and manage public access in accordance with the final Rocky Flats' cleanup decision documents to ensure the safety of the Refuge visitors, staff and neighbors.

Objective 3.1—Staff Safety

Throughout the life of the CCP, all Service staff working at the Refuge will participate in a Refuge orientation and training that will introduce them to the site itself, the institutional controls, CERCLA remedy requirements,

safety procedures (both workers and public) and physical hazards. The orientation and training will be required prior to beginning an assignment.

Rationale: Rocky Flats National Wildlife Refuge is a CERCLA site that has undergone cleanup. Specific areas will remain under primary jurisdiction of the DOE and may remain off limits to the public. It will be important that Refuge staff receive specific training regarding the site background, remediation actions, CERCLA remedy requirements and institutional controls. This training will help ensure the safety of employees and visitors. Knowledgeable employees will be instrumental in ensuring that visitors are kept informed and feel safe during their visit to the Refuge.

Strategies:

3.1.1 - Develop an orientation training program that clearly addresses key Refuge safety issues.

3.1.2 - Provide first aid training to key staff who may be required to assist the public and staff on site should an accident occur.

3.1.3 - Develop a record keeping system to document worker training.

3.1.4 - As appropriate, develop site-specific appendixes to the Refuge Complex Safety Plan.

3.1.5 - Develop a health and safety plan, within a year of plan approval, to cover all Refuge operations.

3.1.6 - Implement a goal of zero incident performance.

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Maps and interpretive signs will inform visitors about the site's history, cleanup, and access restrictions.

Objective 3.2—Visitor Safety

Within 5 years of Refuge establishment 75 percent of visitors will be aware that the Refuge is safe and open for public access before they arrive. Upon arrival, these visitors will be informed of public use opportunities and restrictions.

Rationale: Both the EPA and the CDPHE have concurred that the Refuge will be safe for public access (Appendix D). However, given the Rocky Flats site's nuclear weapons production history, it will be important for the Service to clearly inform the public that it is safe to visit the Refuge and that the site offers opportunities to experience unique grassland habitat and many wildlife dependent recreation programs and facilities. In addition to promoting opportunities for accessing the Refuge, the Service will communicate to visitors about the site's history and areas on-site where public access is prohibited. Areas retained by DOE will most likely be closed to public access and access to sensitive habitats will be restricted at times. Similarly, the dilapidated structures within the Lindsay Ranch complex may be fenced off if they pose a safety hazard.

Outreach materials, signage and staff will educate the public about the steps to becoming a refuge, access restrictions and opportunities. DOE will post signage and construct fencing or another means of boundary demarcation to clearly identify all restricted areas that are subject to institutional controls. The Service will continue to work with DOE to ensure that the boundary is clearly visible to the public.

Strategies:

3.2.1 - Ensure that every guided program addresses the site's history.

3.2.2 - Include safety-related questions in the visitor survey. Surveys will be used to determine the safety knowledge of the visitors and understand how to adjust the safety awareness program based on this information.

3.2.3 - Provide maps and interpretive signs at all trailheads that inform visitors about the site's history, clean up, and access restrictions.

3.2.4 - Help potential users understand the site's restrictions and public use opportunities through a diversity of media including TV and radio programs, brochures, personal talks, website, public service announcements, news releases and articles. Also work with local school systems to educate teachers and students about the Refuge's recreational and educational

potential.

3.2.5 - Provide Refuge access information to regional map and tour book publishers.

3.2.6 - Develop surveys that are implemented at Refuge access points to determine the safety knowledge of the visitors and understand how to adjust the awareness program based on this information. Data collection will be consolidated into one public use survey encompassing survey needs identified in other goals.

3.2.7 - Maintain a law enforcement presence on-site and ensure that Refuge employees are well informed and can educate visitors on Refuge safety restrictions and allowable uses.

3.2.8 - Document violations and measure the success of the program by the reduction in violations.

3.2.9 - Close the Refuge to public use prior to and during the use of prescribed fire on the Refuge.

3.2.10 - Work with DOE to clearly demarcate the DOE retained land boundary with a barbed-wire agricultural fence, permanent obelisks, signage or other appropriate means.

3.2.11 - Address the site's history in guided programs.

GOAL 4. EFFECTIVE AND OPEN COMMUNICATION

Conduct communication outreach efforts to raise public awareness about the Refuge programs, management decisions and the mission of the U.S. Fish & Wildlife Service and the National Wildlife Refuge System among visitors, students and nearby residents.

Objective 4.1—Outreach

Within 5 years of the Refuge's establishment, develop and implement four outreach methods to inform the public about environmental stewardship, safety issues, CCP implementation and educate them on the missions of the Service and NWRS. Once established in year 1, outreach efforts will be ongoing throughout the life of the CCP.

Rationale: Historically, Rocky Flats has been a controversial site with substantial public interest and concern. The Service will respond to inquiries and educate the public about the site's transformation from a nuclear weapons production facility to a National Wildlife Refuge. Additionally, the Service will work with stakeholders, interest groups and the general public to inform them about the site's resources and the visitor

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The Service will continue to partner with CDOW.

programs and facilities. In order to achieve the Refuge’s purposes, vision and goals, the Service will need to maintain open and regular communication with the public.

Strategies:

4.1.1 - At a minimum conduct outreach opportunities in Broomfield, Boulder, Arvada and Westminster and recruit participation from the local municipal governments, business communities, civic and educational organizations, conservation groups, recreational users and other interested stakeholders.

4.1.2 - Establish a monitoring system to measure the diversity of groups in attendance at outreach events.

4.1.3 - Use a variety of outreach communication methods such as a newsletter, website, news releases, local newspaper column and TV and radio programs.

4.1.4 - Encourage Refuge staff to attend selected government and organization meetings and participate with DOE in communicating with the public about long-term stewardship programs.

GOAL 5. WORKING WITH OTHERS

Foster beneficial partnerships with individuals, government agencies and non-governmental organizations and others that promote resource conservation, compatible wildlife-related research, public use, site history and infrastructure.

Objective 5.1—Emergency

Within 1 year of the Refuge’s establishment, emergency response agreements will be in place with all adjacent fire districts for mutual aid in responding to fire and other emergencies. Additional emergency response and fire protection agreements will be developed with state and local law enforcement agencies as needed.

Rationale: The Refuge is small and in close proximity to a number of communities. Given the Refuge’s location and the other on-site safety issues, rapid suppression of fire or response to other emergencies will be essential.

Strategies:

5.1.1 - Meet annually, or as often as needed, with partnering agencies including DOE, to coordinate fire and emergency response plans.

5.1.2 - Coordinate all prescribed fires with all nearby fire districts and other cooperating agencies.

Objective 5.2—Conservation

Throughout the life of the CCP, Refuge staff will meet annually (at a minimum) with local governments and other adjacent landowners, to coordinate habitat management and resource conservation strategies.

Rationale: The Service will encourage a regional management approach for the conservation and restoration of natural resources, which will require collaboration with surrounding landowners. Many natural resource management issues such as invasive weed control, wildlife corridors, recovery of declining species and impacts to resources caused by visitors will need to be coordinated across boundaries.

Strategies:

5.2.1 - Work closely with surrounding open space and natural resource entities such as Jefferson County, City of Boulder, Boulder County, City and County of Broomfield, City of Westminster, Town of Superior, City of Arvada and CDOW to develop resource management approaches for issues that cross Refuge boundaries.

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Volunteers will help with some restoration projects.

5.2.2 - Use volunteers to help with conservation and restoration activities.

5.2.3 - Work with adjacent landowners to maintain corridors for ungulate populations and other wildlife that migrate seasonally to and from the Refuge.

Objective 5.3—Research

Within the first 5 years of the Refuge’s establishment, develop a list of research needs to be addressed by Refuge staff and external researchers and establish a system to evaluate and approve proposals for compatible scientific research that focuses on the Refuge’s habitat, wildlife and public use.

Rationale: Because the Refuge will be a newly established refuge with limited resources, it will be important for Service staff to collaborate with outside researchers. Research partnerships would allow the Service to expand its baseline data and study management techniques more efficiently. Research that has direct implications for Refuge management, such as information gathering and analysis focused on wildlife, habitat and public use would be instrumental in shaping the management direction of the Refuge and similar prairie landscapes throughout the life of the CCP and into the future.

Strategies

5.3.1 - Establish criteria to evaluate research proposals that will ensure research is compatible with the Refuge mission, purpose and goals.

5.3.2 - Emphasize and support research focusing on studies that directly affect Refuge management.

Objective 5.4—Volunteer

Within 3 years of the Refuge’s establishment, create a volunteer program and support the establishment of a Friends group for the Rocky Flats National Wildlife Refuge.

Rationale: Volunteers are essential for the growth and success of many refuges within the NWRS. Volunteers can assist with both resource conservation activities and visitor use programs. Support of a Friends groups would play an important role in leveraging local private resources and public support for Refuge programs.

Strategies

5.4.1 - Recruit volunteers from equestrian and bicycle groups and others to help maintain trails.

5.4.2 - Develop and implement a volunteer program that

defines volunteer opportunities for participation in wildlife habitat and public use programs.

5.4.3 - Work with interested individuals to establish and maintain a nonprofit corporation who’s objective is to positively support the Refuge.

GOAL 6. REFUGE OPERATIONS

Based on available funds, provide facilities and staff to fulfill the Refuge vision and purpose.

Objective 6.1—Staffing

Within 2 years of the Refuge’s establishment, obtain base funding for three employees (3.0 FTE) for the Refuge and within 5 years, add one employee (1.0 FTE). Also assign collateral duties for Rocky Mountain Arsenal NWR staff. Fire management funding will be used for an additional two full-time (2.0 FTE) and two seasonal (1.0 FTE) employees.

Rationale: Due to the site’s urban context, high public interest and extensive restoration requirements, on-site staffing and facilities will be necessary from the onset of the CCP’s implementation. Staffing needs will be based on the current and projected NWRS’s budgetary environment and the objectives of the CCP. Three full-time employees (3.0 FTE) will be required within 2 years of Refuge establishment to begin instituting habitat and restoration management practices. An increase in public use after year 5 will require one additional employee (1.0 FTE).

Due to the use of prescribed fire and the high probability and frequency of wildfires in the grasslands of the Refuge, fire personnel are included in the staffing. Refuge fire staff (3.0 FTE) will be responsible for suppressing wildfires, developing prescribed burn plans, overseeing prescribed fires and developing and maintaining mutual aid agreements. Because the Refuge will be managed as part of a complex, in conjunction with Two Ponds NWR and the RMA, some staffing resources will be shared between the three refuges. Collateral duties for Two Ponds and RMA staff at the Refuge will ensure that the new Refuge benefits from the experience and expertise of trained staff.

Strategies:

6.1.1 - Follow Service protocols for budget development and hiring of staff.

Objective 6.2—Operations and Management Facilities

Within 5 years of the Refuge’s establishment, develop 50 percent of administrative and visitor use facilities for on-

site presence and connectivity with regional trail systems. Within 5 years of the Refuge's establishment, develop 50 percent of O&M facilities needed to support public use and conservation objectives. By year 10, complete all O&M facilities.

Rationale: During the early years of CCP implementation, management resources will be focused on public outreach and education beyond the site boundaries, developing partnerships and securing funding. Habitat conservation and restoration will be the primary management priority. Construction of the trail system, signage and orientation and interpretation facilities will follow the development of restoration measures.

During the first 5 years of the Refuge's establishment, the Service staff will rely on O&M facilities at RMA. Due to public outreach events and word of mouth, visitor numbers are likely to substantially increase once the Refuge is fully open to the general public in the fifth year of the Refuge's establishment. Therefore, it will be important to establish on site staffing and complete visitor facilities by year 10. Once visitor use facilities are established, on-site maintenance facilities will be constructed and interpretive signage and trails will be upgraded. Throughout the life of the CCP, RMA O&M facilities and staff will supplement Refuge operations. The Service will not use the land at Rocky Flats for residential or "bunkhouse" facilities during the life of the CCP.

Strategies:

6.2.1 - Prepare and submit projects for the Refuge Operations Needs System and Maintenance Management System database.

6.2.2 - Prepare a fire cache and install necessary water storage systems (e.g., tanks).

6.2.3 - Coordinate equipment use with RMA staff.

6.2.4 - Install boundary and trailhead signs along the Refuge boundary in order to identify access points and ownership.

6.2.5 - Renovate existing, on-site vehicle search buildings to create a small office space and to use for storage and other refuge operations.

6.2.6 - Provide administrative offices for Refuge employees within the contact station.

6.2.7 - Pursue partnerships and funding sources including but not limited to challenge cost share projects, Federal Highway Administration, CDOT and other transportation

entities, Great Outdoors Colorado, CDOW, Mile High Youth Corps, Colorado Historical Society and Volunteers for Outdoor Colorado.

6.2.8 - Where possible, screen maintenance facilities from visitor use areas.

6.2.9 - Construct a small (1,750 to 2,250 square feet) maintenance/storage facility.

6.2.10 - Install a cistern or other storage system to provide water to the visitor contact station, offices, and maintenance facilities.

6.2.11 - Co-locate O&M facilities with public use facilities and construct facilities in areas that are already disturbed or degraded and will not impact important wildlife habitat.

Objective 6.3—Fencing

Upon the Refuge's establishment and throughout the life of the CCP, maintain the existing barbed-wire stock fence. The fence will line the entire perimeter and will be suitable for excluding neighboring livestock from trespassing on the Refuge.

Rationale: State law requires that a stock fence enclose the Refuge to prevent livestock trespassing. Visitor safety and wildlife habitat goals will be accomplished through signage, staff contact with visitors and internal fencing of off-limits areas. The Service will also work closely with DOE to ensure that the DOE retained land boundary is clearly demarcated.

Strategies:

6.3.1 - Attach boundary signage to the perimeter fence and any fencing delineating the DOE retained area.

6.3.2 - Advise DOE on the use of signage and fencing to demarcate the boundary of lands subject to institutional controls.

Objective 6.4—Cultural Resources - Lindsay Barn

By year five, develop a step-down plan for the preservation of all cultural resources on the Refuge. By the end of the CCP, interpret the Lindsay Ranch barn.

Rationale: Although the Lindsay Ranch structures are not eligible for listing in the National Register of Historic Places, they are valued by the public and present an opportunity to interpret the early ranching era at the Refuge. The Lindsay Ranch structures including a barn and house are not structurally sound and are in varying states of decay. In order to preserve the scenic value of the cultural resource, the Service and DOE initiated a project to stabilize the barn in 2003. Since the ranch

house is not structurally sound and presents a safety concern, the Service chose to concentrate its stabilization efforts on the barn. The house will be fenced off or taken down to minimize safety hazards. Should partners raise sufficient funds to stabilize and interpret the ranch house, the Service will be amenable to working with them to complete such a project. Over time, additional cultural resources may be uncovered on the Refuge. The Service will maintain a record of identified cultural resources. Where appropriate, the Service will provide interpretive signage to help visitors better understand the history of the Lindsay Ranch.

Strategies:

6.4.1 - Pursue partnerships to help fund the ongoing stabilization of the Lindsay Ranch barn.

6.4.2 - Maintain an inventory of all cultural resources found on site.

6.4.3 - Following all prescribed fires, survey burned areas for archaeological or cultural resources or artifacts.

6.4.4 - Work with interested parties and organizations to interpret the Lindsay Ranch and the story of homesteading on the Refuge.

6.4.5 - Use trail signage to identify the historic stage-coach stop and apple orchard in the Woman Creek drainage.

Objective 6.5—Cultural Resources - Site History

Within 5 years of the Refuge's establishment, develop a cooperative partnership with interested stakeholders, including the Cold War Museum, to interpret the history of the Refuge.

Rationale: The history of the Refuge represents diverse periods of time and topics ranging from Native American history to the settlement of the western frontier and nuclear weapons production during the Cold War. The history and cultural resources of the Refuge are of interest to many groups and individuals. Interested stakeholders, including the Cold War Museum, will be key partners in interpreting the site's history and cultural resources and securing funding for interpretation and stabilization efforts.

Strategies:

6.5.1 - Work with a variety of interested entities to manage and interpret the history of the site as it evolved through time. Interpretation programs will illuminate the historical evolution of the site including Native Americans, early settlement, ranching and Cold War histories.

6.5.2 - Work with appropriate state and federal agencies to manage the site's cultural resources appropriately.

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The Service will provide interpretive signage to help visitors better understand the history of the Lindsay Ranch.

Table 8. Summary of Objectives and Strategies

<i>Summary of CCP Objectives and Strategies</i>	
WILDLIFE and HABITAT MANAGEMENT	
Preble’s Habitat Management	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Protect, maintain, and improve Preble’s habitat throughout the Refuge. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Survey Preble’s locations and habitat every 2-3 years. • If necessary, exclude grazing/browsing animals to protect habitat. • Seek funding/partnerships to monitor impacts of recreation on Preble’s.
Xeric Tallgrass Management	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Maintain xeric tallgrass habitat across the Refuge with a native species composition of 80%. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Within 2 years, develop vegetation management plan. • Monitor every 2-3 years to determine species composition, document effectiveness of weed control applications and assess impacts of disturbance on plant communities across Refuge. • Use prescribed fire, grazing, mowing and other tools to stimulate the growth of native plants. • Suppress all natural wildfires. • Participate in regional xeric tallgrass prairie conservation efforts.
Mixed Grassland Prairie Management	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Maintain and improve the vigor and native species composition of short and mesic mixed grassland habitat. • Restore hay meadow and other areas to a native mixed grassland community. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Allow short and mesic prairie to support sustainable prairie dog expansion. • Maintain short and mesic prairie to support the reintroduction of sharp-tailed grouse or other species. • Use prescribed fire, grazing, mowing and other tools to stimulate the growth of native plants. • Suppress all natural wildfires. • Restore hay meadow and other areas to native mixed grassland.

Summary of CCP Objectives and Strategies

WILDLIFE and HABITAT MANAGEMENT (continued)

Road Restoration and Revegetation	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Revegetate 27.8 miles of unused roads and 13 stream crossings across the Refuge (to be completed by the end of the plan). <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Allow natural revegetation of lightly used roads and stream crossings. • In some locations, regrade and seed roads. • Survey for noxious weeds and apply IMP techniques to control noxious weeds in seeded road corridors. • Every 3 years survey to determine ground cover, vegetation density, species composition, and effectiveness of weed control and impact of disturbances.
Weed Management	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Across the Refuge, <ul style="list-style-type: none"> - Reduce the density of diffuse knapweed and Dalmation toadflax populations to 15%, 30%, and 60% for 5, 10 and 15 years respectively. - Reduce the density and halt the spread of other noxious weed species, especially Canada thistle, by 50% within 15 years. • Prevent the establishment of species on County and State weed lists not yet observed on the Refuge. • Limit and control the spread and density of existing weed infestation. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Employ an integrated pest management (IPM) approach to include prescribed fire, managed grazing, herbicides, biological controls, grubbing/hand-pulling, collecting tumbleweeds. • Annually map perimeters of weed infestations and treatment sites. • Develop comprehensive integrated pest management plan. • Informally survey for new infestations along roadways, trail, restoration areas and disturbed sites. • Establish interior fencing to collect wind dispersed weeds; burn along fence lines to dispose of collected weeds.

Summary of CCP Objectives and Strategies

WILDLIFE and HABITAT MANAGEMENT (continued)

Deer and Elk Management	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Within 3 years, establish deer and elk population targets to be achieved by year 5. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Use public hunting, culling, temporary exclosures, or hazing to manage populations. • Cooperate with CDOW in monitoring and controlling populations. • Monitor every 2 years to evaluate ungulate impacts on riparian and upland shrub communities in Preble's habitat. • Conduct annual abundance and density counts. • Use photo monitoring to document any habitat degradation. • Work with others to protect movement corridors.
Prairie Dog Management	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Limit prairie dog populations to 750 acres outside of recognized Preble's habitat and xeric tallgrass habitat throughout the Refuge. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Annually monitor distribution of prairie dog populations. • Trap and relocate, or use other methods, to exclude prairie dogs from sensitive habitat areas. • Do not accept prairie dogs from off-site locations. • Monitor for plague.
Species Reintroduction	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Facilitate reintroduction of native extirpated species by or in coordination with CDOW. • Within 3 years, evaluate suitability for additional reintroduction of native extirpated species such as sharp-tailed grouse in coordination with CDOW. • Monitor redbelly dace and common shiner populations (introduced 2003) until successfully established. • Prioritize species to be reintroduced. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Oversee and assist CDOW on species release, monitoring, and habitat maintenance. • If suitable, complete management plan for sharp-tailed grouse within first 2 years. • Annually monitor native fish in Rock Creek and introduce to other drainages.

Summary of CCP Objectives and Strategies

PUBLIC USE, EDUCATION and INTERPRETATION

Public Access	<p><i>Objectives:</i></p> <ul style="list-style-type: none"> • Within 5 years, 75% of visitors will feel safe. • By plan's end, visitors experience the Refuge on foot, bike and horse. • In year 1, open a trail to Lindsay Ranch. By years 5-7 open more trails and create baseline visitor data. • By plan's end, 25% of visitors appreciate Refuge stewardship and desire to adopt conservation ethics. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Allow self-guided public access to trails and facilities. • Develop an outreach program. • Develop surveys to measure visitor experience. • Provide a seasonally staffed visitor contact station, overlooks, trails, and other facilities. Site trails (pedestrian only and multi-use trails for equestrian and bike use) to provide opportunities for wildlife observation. Allow limited off-trail use. Seasonally close some trails to minimize wildlife impacts. • Use signage, staff contact, brochures, website and other means to inform visitors about the steps to becoming a refuge and access opportunities and restrictions. • Implement volunteer programs. • Keep surrounding communities informed about Refuge events and plan implementation. • Develop an interpretive signage system and interpretive programs.
Interpretation	<p><i>Objectives:</i></p> <ul style="list-style-type: none"> • Within 4 years, develop a plan outlining interpretive facilities/programs. • Within 15 years, implement the interpretive component of the Visitor Services Plan. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Work with partners to develop the interpretive component of the Visitor Services Plan. • Develop programs that explore the site's resources. • Distribute a variety of interpretive media.

Summary of CCP Objectives and Strategies

PUBLIC USE, EDUCATION and INTERPRETATION (continued)

<p>Environmental Education</p>	<p><i>Objectives:</i></p> <ul style="list-style-type: none"> • Within 5 years, develop an education plan for high school and college students. • Within 8 years, implement the education component of the Visitor Services Plan. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Partner with educational institutions and the Cold War Museum. • Use electronic and other media to distribute data.
<p>Hunting</p>	<p><i>Objectives:</i></p> <ul style="list-style-type: none"> • Within 2 years, institute a controlled youth and/or disabled person’s deer and/or elk hunting program. Following year 3, consider expanding the hunting program to the general public. • Following each hunting season, assess the hunting program and adjust as appropriate. • 95% percent of hunters will report no conflicts with other users, and be satisfied with their experience. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Work with the Colorado Division of Wildlife and other entities to develop a hunting component of the Visitor Services Plan and to monitor deer populations and habitat condition. • Close the refuge to others during hunting weekends and encourage staff to interact one-on-one with the hunters. • Develop a survey for hunters, adjacent landowners and surrounding communities.
<p>Recreation Facilities</p>	<p><i>Objectives:</i></p> <ul style="list-style-type: none"> • Within 1 year, develop Lindsay Ranch trail. By years 5-7 build 75% of trails. By year 15, build all facilities including about 4 miles of hiking trails and about 13 miles of multi-use trails. • Within 10 years, construct a seasonally staffed contact station/restrooms and maintenance facilities. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Develop a universal access trail to the Lindsay Ranch overlook and pedestrian only trails in the Rock Creek drainage. • Mark trails with way finding and interpretive signs and seasonally close trails to protect wildlife habitats. • Construct seasonally staffed contact station, un-staffed welcome kiosk, wildlife viewing blind, and portable restrooms at trailheads and partner to develop trail links and pedestrian crossings. Routinely evaluate facility impacts on wildlife.

Summary of CCP Objectives and Strategies

SAFETY

Staff Safety	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • All Refuge staff will receive orientation/training. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Develop orientation and first aid training that addresses key Refuge safety issues. • Develop site-specific appendices to the Refuge Complex Safety Plan. • Within 1 year, develop a health and safety plan to cover all Refuge operations. • Implement a goal of zero incident performance.
Visitor Safety	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Within 5 years, 75% of visitors will be aware that the Refuge is safe and open for public access before they arrive. Upon arrival, these visitors will be informed of public use opportunities and restrictions. • Brief all participants in guided programs about site history. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Provide maps and interpretive signage with restriction information at all access points/trailheads. • Help potential users understand site restrictions and public use opportunities through a diversity of media. • Provide information to map/ tour book publishers. • Survey visitors to check success of safety program. • Maintain law enforcement and ensure employees can educate visitors on safety issues. • Measure program success by a reduction in visitors who violate safety rules.
OPEN and EFFECTIVE COMMUNICATION	
Outreach	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Within 5 years, implement 4 methods of informing the public. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Reach out to local communities and recruit participants. • Measure diversity of groups attending outreach events. • Utilize a variety of outreach communication methods. • Take part in stewardship programs and local meetings.

Summary of CCP Objectives and Strategies

WORKING WITH OTHERS

<p>Emergency</p>	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Within 1 year, create emergency response agreements with relevant parties. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Meet annually, or as often as needed, to coordinate fire and emergency response plans. • Coordinate all prescribed burning and other restoration practices with all nearby agencies.
<p>Conservation</p>	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Meet annually (at minimum) with local entities to address conservation issues. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Work closely with surrounding open space and natural resource entities. • Use volunteers to help with conservation activities. • Partner to maintain wildlife corridors for wildlife that migrate seasonally to and from the Refuge.
<p>Research</p>	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Make a list of habitat, wildlife and public use research needs; evaluate proposals for such research. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Establish criteria to evaluate research proposals. • Emphasize research with implications for the Refuge. • Partner with other for research funding and resources.
<p>Volunteers</p>	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Within 3 years, create a volunteer program. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Define volunteer opportunities, and recruit volunteers from horse and bike groups to help maintain trails. • Work to establish a Refuge “Friends” group.

Summary of CCP Objectives and Strategies

REFUGE OPERATIONS

Staffing	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Within 2 years, fund four employees and assign collateral duties for Rocky Mountain Arsenal staff. Within 5 years add 1 additional employee. • Fund two full-time and two seasonal employees from fire management funding. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Follow Service protocols hiring of FTEs.
Operation and Management Facilities	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Within 5 years, develop 50% of operations and maintenance facilities needed to support public use and conservation objectives. By year 10, complete all operations and maintenance facilities. • Maintain the existing stock fence. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Submit proposals to the Refuge Operations Needs System and Maintenance Management System. • Renovate existing vehicle search buildings and provide additional administrative offices for Refuge employees within the contact station. • Prepare a fire cache and install necessary water storage systems. • Coordinate equipment sharing with RMA staff. • Attach boundary signage to the perimeter fence. • Install roadside signs along the site boundary in order to announce the Refuge's presence. • Construct a small maintenance/storage facility (approximately 1750 - 2250 square feet).
Cultural Resource Management	<p><i>Objective:</i></p> <ul style="list-style-type: none"> • Develop a cultural resource preservation plan. • Stabilize and interpret the Lindsay Ranch barn. <p><i>Strategies:</i></p> <ul style="list-style-type: none"> • Maintain an inventory of all cultural resources. • Pursue partnerships to fund barn stabilization. • Fence and/or take down the Lindsay Ranch house to prevent a safety hazard. • Work with interested parties to interpret the story of homesteading at Rocky Flats. • Survey burned areas for cultural artifacts.

4.3. ENVIRONMENTAL CONSEQUENCES

SUMMARY

The CCP will pose a variety of benefits and impacts to the resources of the Refuge. Many of the greatest environmental benefits will be the result of road removal and revegetation, weed management practices, and habitat management strategies for the Preble's meadow jumping mouse. The greatest negative impacts to the resources will result from new facility development and visitor use. The environmental consequences of establishing and managing the Rocky Flats NWR in accordance with this CCP are summarized below. For a more detailed outline of impacts refer to table 9 at the end of the chapter.

Preble's Habitat Management

The maintenance, protection, and improvement of riparian and wetland habitat for Preble's will result in long-term benefits for a number of species that depend on riparian habitat. In addition, the maintenance of a vegetated buffer around watercourses will benefit the water resources of the Refuge. Furthermore, by providing a core reserve for these threatened animals, Preble's habitat management on the Refuge is likely to benefit populations on adjacent

lands. Increased monitoring of Preble's habitat, however, may result in short-term, minor impacts to other riparian-dependent species. The potential exclusion of deer and elk from some of these riparian areas would further protect riparian communities. While monitoring the impacts of public use on riparian habitat and Preble's populations would provide long-term benefits, recreational monitoring alone may provide insufficient impacts for effective habitat management.

Grassland Management

Grassland management and weed management tools, including prescribed fire, grazing, and the restoration of 300 acres of disturbed grassland, could result in short-term impacts to the Refuge due to disturbance of the existing soil and vegetation structure. Effects of this disturbance could include localized erosion, individual wildlife impacts, localized air quality impacts due to prescribed fire, and potential visual impacts. However, all of the short-term effects of grassland management tools will result in long-term benefits by promoting more robust and sustainable native grassland communities. Improved and diversified habitat conditions will result in long-term benefits to a variety of wildlife species, including grassland birds and native burrowing mammals.

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Population control of deer and elk by CDOW and USFWS will benefit those species and the habitat they depend on.

Road Removal and Revegetation

By reducing habitat fragmentation and eliminating conduits for invasive weeds and predators, the removal and revegetation of unused roads and stream crossings will provide major long-term benefits to vegetation communities and related wildlife species. Throughout the Refuge, 28 miles of road will be removed and revegetated, and 13 stream crossings will be restored. While these changes will result in short-term soil disturbance and erosion, these short-term effects will be outweighed by the long-term benefits. Road removal and revegetation will provide 51 acres of additional habitat and will increase the Refuge's average habitat patch size to 93 acres. One animal species that should benefit from these changes is the threatened Preble's meadow jumping mouse, which inhabits riparian habitats directly affected by the restored stream crossings. In the long term, the Refuge's water resources should also benefit, through improved bank stabilization and stream channel vegetation. Finally, road removal and revegetation will have a direct positive impact on the visual resources of the Refuge, as road scars in the landscape fade from view.

Weed Management

The implementation of an Integrated Pest Management (IPM) plan will allow the Service to develop a targeted weed-management strategy that will benefit a variety of vegetation communities and native wildlife species. The chemical, biological, and mechanical tools employed to control weeds may have short-term adverse impacts for both plants and wildlife, but these impacts will be offset by the long-term advantages. For instance, by reducing competition from invasive weeds, weed management activities will enhance the quality and diversity of native vegetation communities, which will provide long-term benefits to a variety of native wildlife species. The inclusion of prescribed fire and grazing as restoration tools will provide further long-term advantages. Moreover, the benefits of weed management may extend beyond the Refuge borders, by reducing the spread of weeds in adjacent open space areas and by providing a source of information for regional weed management efforts.

Deer and Elk Management

Population control of deer and elk by CDOW and USFWS will benefit those species and the habitat they depend on. For instance, by monitoring deer impacts on riparian habitat, Refuge staff could identify excessive overgrazing and overbrowsing, and implement aggressive management activities to limit damage and benefit Preble's habitat. While culling and public hunting will directly impact individual animals that are killed, these practices should provide long-term benefits to deer and elk populations

throughout the Refuge and on adjacent lands. The establishment of a five-year time-span for meeting the target population is an important factor in ensuring healthy populations and limiting habitat degradation. This carefully considered program of deer and elk management may provide environmental benefits in areas far from Rocky Flats, as it will add to the growing base of scientific information regarding wildlife management.

Prairie Dog Management

The Refuge has the potential to support many more prairie dog colonies and individuals than currently occupy the site. A healthy prairie dog population on the Refuge will provide a genetic base for the region if other populations are diminished by plague, predation, or other factors. The expansion of prairie dog colonies will be limited to 750 acres of suitable habitat on the Refuge. Excluding prairie dogs from riparian areas and xeric tallgrass communities, which are not suitable habitat, will benefit these communities. Prairie dog expansion could result in minor impacts to the existing soil and vegetation structure and some grassland wildlife species in expansion areas. Nevertheless, it will have a beneficial effect on wildlife and wildlife habitat by enhancing nutrient cycling and plant growth, and increasing habitat for other wildlife species that inhabit prairie dog colonies. For example, prairie dog expansion will improve foraging conditions for nearby bald eagles and other predators on the Refuge. Overall, a greater diversity of wildlife is expected with expansion of prairie dog colonies.

Species Reintroduction

Sharp-tailed grouse is a likely candidate for reintroduction to the Refuge. Species reintroduction would benefit wildlife diversity throughout the Refuge and on nearby open space lands and would result in increased wildlife viewing opportunities. Weed management activities and other planning would benefit these reintroduced



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The use of blinds and overlooks, as well as guided interpretive visits, will help mitigate impacts to wildlife.

populations. Additionally, the ongoing reintroduction of native fish species in Rock Creek and the Lindsay Ponds (and potentially other creeks) will provide long-term benefits to the survival of these species by establishing a population in its native habitat that can be a source for future reintroductions to other foothills and plains streams.

Facility Development

In the short term, the development of new trails and facilities will result in localized soil disturbance and erosion from construction, with corresponding impacts to water resources through erosion and sedimentation. Soil loss from new facilities will occur on 1.1 acres, and soil disturbance will occur on 1.7 miles of newly constructed trail. In the long term, trail use and off-trail use near streams may result in some bank destabilization and erosion. New trails and facilities will directly impact existing vegetation and indirectly impact vegetation in places adjacent to development sites, resulting in 4.8 acres of impacted vegetation. The development of trails and facilities on the Refuge, however, will provide real benefits to the public by complementing, but not duplicating, recreational opportunities available on nearby open space lands. Trails and trailheads will also benefit the connectivity of the regional trail system, though they will not provide a direct link to Boulder County trails to the north.

Public Use

Trail use throughout the Refuge may adversely affect wildlife by creating a new disturbance that disrupts wildlife movement and fragments some habitat areas. Off-trail use will pose minor impacts to vegetation due to trampling, social trails, and dispersal of weeds. In addition, new trails are likely to function as conduits for predators and weeds. On the other hand, some of these intrusions could benefit deer populations by increasing deer movement, which may result in improved genetic diversity. In riparian areas, use of trails may result in minor impacts to the Preble's meadow jumping mouse. The trails, however, do not follow riparian areas for extended distances and these impacts will be mitigated by seasonal trail closures. In general, short-term impacts to wildlife, such as changes in behavior, foraging habits or physiology, will apply to individuals rather than populations or communities. For smaller species including birds, small mammals, reptiles, and insects, the presence and ongoing use of a trail will likely result in minor localized adverse impacts by creating a barrier to movement and the availability of nearby habitat (Meaney et al. 2002; Dickerson 2003; Miller and Knight 2001). Visitors engaging in wildlife photography and observation can cause short-term impacts to wildlife due to the long

duration of their behavior (Knight and Cole, 1995; Weir 2000). The use of established blinds and overlooks, as well as guided interpretive visits, will help mitigate these impacts.

Trail disturbance to large, broad ranging species such as mule deer and elk will result in minor adverse impacts due to changes in movement patterns and abandonment of certain concentration areas. Public hunting will result in direct impacts to some individuals and will introduce a new disturbance. The minor impacts of hunting will be offset by the long-term benefits of improved population dynamics (migration and dispersal) on the Refuge and in surrounding habitat areas.

Research

Habitat related research would benefit vegetation and habitat management refuge-wide and regionally. Short-term wildlife disturbances from research and monitoring would be offset by improved knowledge of wildlife management.

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Table 9. Summary of Environmental Consequences

<i>Environmental Consequences of the CCP</i>	
GEOLOGY and SOILS	
Deer and Elk Management	Population control will reduce potential for soil erosion due to overgrazing.
Prairie Dog Expansion	May result in increased soil erosion. These impacts may be offset by the increased nutrient cycling and soil stability provided by prairie dog colonies. Effects up to 750 acres.
Mixed Prairie Grassland Management	Restoration of hay meadow and other disturbed areas will result in short-term soil disturbance and long-term benefits.
Road Restoration and Revegetation	Road removal will result in short-term soil disturbance and erosion. Long-term benefits of revegetation will offset the short-term effects.
Public Use and Maintenance Facilities	New trails and facilities will result in localized soil disturbance and erosion during construction, and long-term impacts from use.
WATER RESOURCES	
Preble's Habitat Management	Protection and maintenance of riparian habitat and vegetated buffer will benefit water resources.
Weed Management	Localized, short-term erosion may occur following prescribed fire or grazing.
Road Restoration and Revegetation	Road removal Refuge-wide may result in short-term impacts due to sedimentation, and long-term benefits due to improved bank vegetation, stream channel, etc.
Public Use	Trail use and off-trail use near streams may result in bank destabilization and erosion. Facility construction may result in short-term impacts due to erosion and sedimentation.
VEGETATION COMMUNITIES	
Deer and Elk Management	Population management by CDOW and vegetation monitoring will benefit vegetation by reducing impacts of overbrowsing/ overgrazing. Benefits will be increased by the 5-year target population timeframe.
Prairie Dog Management	Prairie dogs may impact some plant communities. Exclusion of prairie dogs from riparian and xeric tallgrass habitat Refuge-wide will benefit these communities.
Preble's Habitat Management	Maintenance, protection, and improvement of riparian and wetland habitat will benefit those communities. <ul style="list-style-type: none"> - Exclusion of ungulates will benefit riparian habitat. - Monitoring recreation impacts only may provide insufficient information for effective riparian habitat management.
Xeric Tallgrass Conservation	Management planning and regional conservation efforts will benefit xeric tallgrass community. Benefits will be Refuge-wide.
Mixed Grassland Prairie Management	Restoration of hay meadow and other areas will benefit grassland communities.

<i>Environmental Consequences of the CCP</i>	
VEGETATION COMMUNITIES (continued)	
Road Restoration and Revegetation	Road removal will benefit vegetation communities Refuge-wide by reducing fragmentation. Removal of stream crossings may result in short-term impacts to wetlands and riparian habitat, with long-term benefits. Will result in: <ul style="list-style-type: none"> - 45 acres of additional habitat - Average patch size of 98 acres
Weed Management	Weed management efforts will benefit vegetation communities Refuge-wide. <ul style="list-style-type: none"> - Chemical, biological, and mechanical control may have short-term adverse impacts that would be offset by long-term benefits. Benefits may be reduced by lack of grazing as a management tool. - Benefits may be increased because of Refuge-wide use of prescribed fire and grazing.
Public Use Facilities	New trails and facilities will directly impact vegetation and indirectly impact adjacent vegetation. Impacts include: <ul style="list-style-type: none"> - 2 acres of impacts to xeric tallgrass grassland - 2.6 acres of mixed grassland
Off-trail Use	Minor impacts to vegetation due to trampling, social trails, and weed dispersal.
Public Use Monitoring	Monitoring impacts of public use on riparian habitat will provide long-term benefit.
Regional Coordination	Coordination with adjacent landowners will benefit vegetation through better management.
Research	Habitat-related research will benefit vegetation and habitat management.
WILDLIFE	
Native Fish Reintroduction	Will provide long-term benefits to fish populations and survival rates.
Sharp-tailed Grouse Reintroduction	Management planning and weed management efforts will benefit grouse reintroduction efforts.
Deer and Elk Management	Population targets will be realized within 5 years, providing moderate benefits. <ul style="list-style-type: none"> - Culling and hunting will impact animals due to mortality or stress, will provide long-term benefits. - Monitoring will be minimum necessary for effective population management.
Preble's Habitat Management	Habitat protection will benefit other riparian wildlife species. Minor impacts to riparian wildlife species due to Preble's monitoring.
Prairie Dog Management	Colony expansion could result in long-term impacts to vegetation structure and local extirpation of some species. Effects will be limited to 750 acres.

<i>Environmental Consequences of the CCP</i>	
VEGETATION COMMUNITIES (<i>continued</i>)	
Road Restoration and Revegetation	Road revegetation will benefit various wildlife species Refuge-wide.
Vegetation and Wildlife Monitoring	May result in short-term impacts (disturbance/displacement) to individual animals.
Xeric Tallgrass Management	Efforts Refuge-wide may have short-term adverse impacts to wildlife and long-term benefits due to habitat enhancement.
Mixed Grassland Prairie Management	Restoration of disturbed areas may impact some resident wildlife; will result in long-term habitat benefits to wildlife.
Weed Management	Various management tools have the potential to cause direct mortality or injury to individual animals. Impacts will be offset by long-term benefits of improved habitat.
Public Use	Trail use throughout the Refuge may adversely affect wildlife in the following ways: <ul style="list-style-type: none"> - Creating a new disturbance that may disrupt wildlife movement and fragment habitat areas. - New trails may provide a conduit for predators and weeds. - Short-term stress and adjustment for mule deer; followed by long-term benefits of increased deer movement that may improve genetic diversity and decrease habitat impacts.
Regional Coordination	Coordination with other land managers will improve wildlife and habitat management.
Research	Short-term wildlife disturbance will be offset by improved knowledge of wildlife management.
Fence Removal	Removal of unnecessary interior stock fencing will benefit wildlife species by facilitating open movement through Refuge.

<i>Environmental Consequences of the CCP</i>	
THREATENED, ENDANGERED and CANDIDATE SPECIES	
Grouse Reintroduction	Grouse habitat management will benefit Preble's habitat, provide additional eagle prey; may conflict with prairie dog habitat management.
Deer and Elk Management	More aggressive population management could benefit Preble's by reducing overbrowsing.
Prairie Dog Management	Colony expansion will be limited to 750 acres. Expansion will benefit prairie dogs and improve foraging for bald eagles, but could impact Preble's habitat.
Preble's Habitat Management	Exclusion of grazing from habitat may have moderate benefits to Preble's. Monitoring could lead to short-term disturbance. Habitat management may benefit bald eagle foraging perches.
Road Restoration and Revegetation	Revegetation of unused roads and stream crossings will benefit all species.
Weed Management	Short-term habitat impacts from management tools followed by long-term habitat improvements.
Public Use	Trail development and use in riparian areas may impact Preble's (mitigated by seasonal closures). Facility development may impact prairie dogs and associated foraging habitat for eagles.
CULTURAL and HISTORIC RESOURCES	
Lindsay Ranch	Stabilization efforts would benefit barn, but value of house would be lost.
OPEN SPACE, RECREATION and TRAILS	
Wildlife Management	Species reintroductions and deer and elk population management on the Refuge may result in long-term benefits to wildlife populations and wildlife viewing opportunities on adjacent open space lands.
Preble's Habitat Management	Refuge could provide a core reserve for Preble's and other species that would benefit populations on adjacent open space lands.
Vegetation Management	Efforts such as xeric tallgrass management planning, and regional collaboration could benefit adjacent open space areas by improving knowledge and coordination.
Weed Management	Weed reduction efforts on the Refuge could benefit adjacent open space by reducing spread of weeds and increasing management knowledge.
Recreation Opportunities	Recreation programs will compliment but not duplicate opportunities on nearby open space lands.
Trail Facilities	Trails and trailheads will benefit the regional connectivity of trails, but would lack a direct connection to Boulder trails.

<i>Environmental Consequences of the CCP</i>	
VISUAL RESOURCES	
Deer and Elk Management	May reduce visual impacts of overgrazing/overbrowsing.
Prairie Dog Management	Colonies will be a visual impact to some, a benefit to others. Effects will be limited to 750 acres of the Refuge.
Prescribed Fire	Short-term visual impacts associated with smoke and burned areas from prescribed fires.
Grazing	May result in short-term visual impacts; though some may consider livestock to be a benefit for landscape views.
Road Removal and Revegetation	Revegetation will benefit visual aesthetics Refuge-wide.
Mixed Grassland Prairie Management	Revegetation will likely cause short-term visual impacts followed by long-term benefits.
Public Use Facilities	May result in minor visual impacts.
NOISE	
Deer and Elk Management	Occasional gunshots associated with culling and public hunting may be audible from within Refuge, but would not impact overall noise levels.
Excavation and Construction	Heavy equipment for road restoration and facility development would result in short-term noise impacts in nearby areas.
TRANSPORTATION	
Highway 93	Contribution of Refuge traffic to Highway 93 will be much less than pre-Refuge conditions. Will not warrant a traffic signal, but existing acceleration/deceleration lanes will be beneficial.
Highway 128	No impacts from trailhead location. Potential trail crossing at McCaslin would require pedestrian signals.
Indiana Street	Potential pedestrian crossings should include warning signs for safety. Recommended locations are north of Walnut Creek, and south of Woman Creek.
AIR QUALITY	
Dust and Emissions	Equipment usage will result in short-term localized emissions and fugitive dust.
Prescribed Fire	Will result in short-term increases in particulates and decreased visibility nearby.

	<i>Environmental Consequences of the CCP</i>
SOCIOECONOMICS	
Staffing	Staffing levels will have no impact on regional employment, income or housing conditions.
Community	Change from past use to Refuge will benefit community perceptions of Rocky Flats.
Environmental Justice	No adverse effects on minority or low-income populations, or Native Americans.

chapter 5



IMPLEMENTATION AND MONITORING

Chapter 5. Implementation and Monitoring

This chapter addresses a range of topics regarding the function and direction of the Refuge in future years. It discusses funding for personnel and equipment as well as opportunities to partner with local entities. Furthermore, the chapter outlines an adaptive process of management that unfolds through monitoring and evaluation. This process will be facilitated by future revisions to the CCP and by step-down management plans, which will provide specific guidance regarding management objectives and strategies.

5.1. FUNDING AND PERSONNEL

Refuge budgets generally include ongoing operations funds for staffing, maintenance and utility needs. Estimated staff is the minimum necessary to accomplish the goals. Appendix F provides a detailed list of this staff along with the costs. Maintenance expenses cover activities necessary to keep facilities and equipment in good working order. Utilities will include gas, electrical, phone and cleaning. In addition to ongoing operations costs, there will be one-time restoration and implementation costs associated with opening the Refuge. These expenses are for activities such as restoring habitat, building facilities and purchasing equipment. Fire management funds are administered from a different funding source and are listed separately.

Because the Refuge will be managed as part of a complex that includes the RMA and Two Ponds, there will be costs that could be shared between the facilities. Therefore, both operations and restoration and implementation costs have been broken out between items that would require new funding for the Refuge and items that would be covered from the complex's existing base funding. Furthermore, large equipment needed for restoration activities is assumed to be shared with the other refuges in the complex and is included with existing base funding.

Estimated costs for alternatives are summarized in Table 10. Costs are presented in 2003 dollars. Because the

Refuge will not be established for several years, these numbers will need to be adjusted for inflation when the Refuge's funding request is made.

The plan will require the equivalent of four employees with an annual funding target of \$543,000 for operations. Required restoration and implementation costs will total \$1.2 million, over a third of which is for maintenance equipment and related storage. Remaining funds requested are for habitat restoration supplies and visitor-related facilities. Fire management activities on the Refuge will require the equivalent of three employees (2 full-time and 2 seasonals) with annual funding of \$133,000, as well as an up-front expenditure of \$125,000 for equipment and supplies. Estimated costs in 2003 dollars over the 15-year period for this alternative are \$8.6 million.

5.2. STEP-DOWN MANAGEMENT PLANS

This CCP describes the desired future conditions of the Refuge and provides long-range guidance and management direction. Chapter 4 describes objectives and strategies that the Service will use to achieve the desired future conditions. During the 15-year life of this plan, the Service will prepare additional plans, called step-down management plans. A step-down management plan provides specific guidance for the Service to follow to achieve objectives or implement management strategies related to specific management topics such as habitat, fire and public use. Step-down plans will be developed as the need arises. The preparation of new step-down plans typically will require further compliance with Service planning policies and procedures, including opportunities for public review and comment. The Service anticipates the following plans will be needed at the Refuge:

- Vegetation and Wildlife Management Plan
- Integrated Pest Management Plan
- Fire Management Plan

Table 10. Estimated Costs

Cost over 15 Years (millions 2003\$)	Annual Operations (thousands)	Restoration and Implementation (millions)	Fire Management (millions)	Major Components of Costs
\$8.6	\$543	\$1.2	\$1.6	Balances public-use and restoration efforts.

- Visitor Services Plan
- Health and Safety Plan
- Historic Preservation Plan

A Visitor Services Plan would be an umbrella document that would include interpretation, environmental education, hunting management and research protocols.

5.3. PARTNERSHIP OPPORTUNITIES

The Service will pursue opportunities to work with federal, state and local agencies, conservation groups, adjacent landowners and other interested parties to advance the purpose of the Refuge and to benefit surrounding communities. Many natural resource management issues such as invasive weed control, wildfire management, wildlife corridors, recovery of declining species and impacts to resources caused by visitors will need to be coordinated across boundaries. Collaboration with surrounding open space and natural resource entities such as Jefferson County, City of Boulder, Boulder County, City and County of Broomfield, City of Westminster, City of Arvada and CDOW will be instrumental in achieving the Service's ecosystem management goals. The Service will also develop and maintain mutual aid agreements related to fire control with adjacent jurisdictions.

The Service will encourage and support research and management studies on Refuge lands that inform natural resource management decisions. Scientific research partnerships will give the Service opportunities to analyze independently collected data and use research results to develop adaptive management strategies. As data-sharing partners, university faculty, staff and students as well as independent scientists will be instrumental in helping the Service develop baseline biological data.

The Service will also collaborate with interested organizations such as the Cold War Museum to interpret the history of the Rocky Flats site and communicate its story to Refuge visitors. Other potential partnerships related to hunting, environmental education, trail use and interpretation may involve local universities, school districts, conservation and/or historical organizations, open space agencies, recreation user groups and the CDOW.

Volunteer partnerships will be cultivated with individuals interested in learning more about the Refuge and assisting staff with various aspects of Refuge operations. The Service also will support the development of a "Friends" group for the new Refuge. Such a group will

play an important role in leveraging private resources and public support for Refuge programming.

5.4. MONITORING AND EVALUATION

The Service will adopt an adaptive management approach to the implementation of the proposed management objectives. Adaptive management is "The rigorous application of management, research and monitoring to gain information and experience necessary to assess and modify management activities... A process that uses feedback from Refuge research and monitoring and evaluation of management actions to support or modify objectives and strategies at all planning levels" (U.S Fish & Wildlife Service 2000). Because the Refuge is new, ongoing monitoring of the effectiveness of habitat restoration and conservation and public use is essential for adapting and refining objectives and strategies to ensure management goals are achieved. Monitoring and evaluation has been integrated into many resource management and public use objectives.

The Service will establish biological monitoring programs to assess the effect of restoration and conservation measures on habitat condition. The Service will monitor certain habitat conditions to determine if the management strategies are serving the needs of native wildlife species. For example, periodic Preble's surveys will help determine the effects of riparian habitat protection and enhancement efforts. To assist in the control of invasive species such as Dalmatian toadflax and diffuse knapweed and to restore native plant communities, the Service will evaluate the use of different treatments and control mechanisms, including an IPM approach, prescribed fire, managed grazing, and a combination of these techniques, for the most efficient forms of weed suppression. The monitoring of vegetation transects will help gauge the long-term effects of weed management and restoration efforts in the xeric tallgrass community.

Visitor use surveys will measure the extent to which visitors feel welcome, safe and comfortable at the Refuge and the extent to which they learned about the Refuge system, safety issues and the Service's stewardship role during their visits. In addition to measuring visitor satisfaction, the surveys will indicate the effectiveness of public use programming in increasing visitors' understanding and appreciation of natural resources and promoting environmentally responsible behavior.

This CCP is designed to be effective for 15 years. It will undergo periodic review to evaluate whether the established strategies are being implemented. Throughout the life of the CCP, the Service will monitor Refuge

resources, assess whether the goals and objectives for the Refuge are being achieved and if necessary, adjust specific management prescriptions to better respond to the long-term needs of the Refuge.

5.5. PLAN AMENDMENT AND REVISION

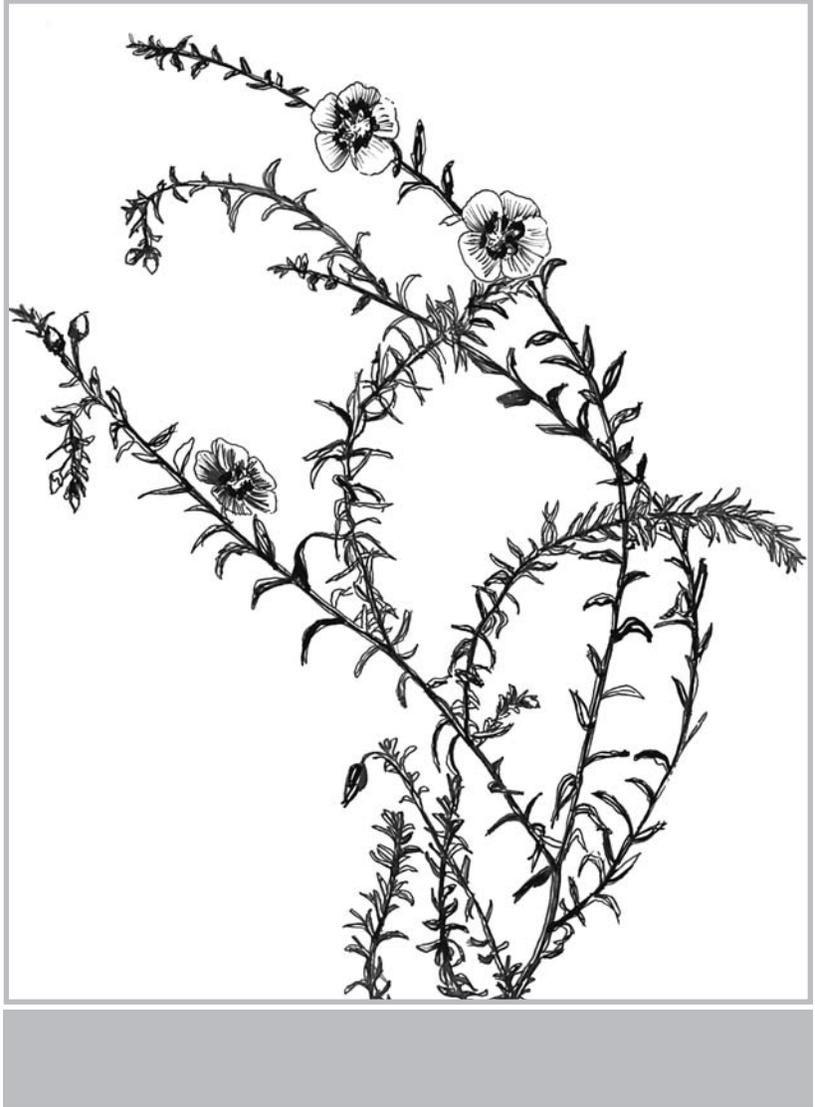
The CCP will be adjusted to include new and improved information as it becomes available over the course of the CCP's 15-year duration. Implementation of the CCP will be monitored and reviewed regularly during inspections and programmatic evaluations. Budget requests and annual work plans will be tied directly to the CCP.

Fifteen years after the Refuge has been established, the CCP will be formally revised, following the process used on this CCP. Any substantive changes to the CCP before the 15-year period will involve a public process. However, under Title 50 CFR, the Refuge Manager has the authority to take immediate actions outside this plan as necessary to respond to emergencies and protect wildlife and public safety.

5.6. REFERENCES

U.S. Fish & Wildlife Service. 2000. Final Refuge Planning Policy. FWM 355. Part 602 National Wildlife Refuge System Planning.

glossary



accessibility: the state or quality of being easily approached or entered, particularly as it relates to the Americans With Disabilities Act.

accessible facilities: structures accessible for most people with disabilities without assistance; ADA-accessible (e.g., parking lots, trails, pathways, ramps).

adaptive management: the rigorous application of management, research, and monitoring to gain information and experience necessary to assess and modify management activities. A process that uses feedback from refuge research and monitoring and evaluation of management actions to support or modify objectives and strategies at all planning levels.

alternative: a reasonable way to fix an identified problem or satisfy a stated need (40 CFR 1500.2 [cf. "management alternative"]).

alluvium: soils that have been formed by the deposition of water borne materials.

appropriate use: a proposed or existing use of a national wildlife refuge that (1) supports the Refuge System Mission, the major purposes, goals or objectives of the refuge; (2) is necessary for the safe and effective conduct of a priority general public use on the refuge; (3) is otherwise determined under Service Manual Chapter 605 FW1 (draft), by the Refuge Manager and Refuge Supervisor to be appropriate.

aquifer: a formation, group of formations, or part of a formation that contains sufficient saturated, permeable material to yield significant quantities of water to wells and springs.

aquitard: a layer of rock having low permeability that stores groundwater but delays its flow.

biodiversity: the variety of life in all its forms.

breeding habitat: habitat used by migratory birds or other animals during the breeding season.

buffer zones: land bordering and protecting critical habitats; areas created or sustained to lessen the negative effects of land development on animals, plants, and their habitats.

candidate species: species for which the Service has sufficient information on file about their biological vulnerability and threats to propose their listing under the Endangered Species Act.

CERCLA: The Comprehensive Environmental Response, Compensation, and Liability Act (commonly known as Superfund), which created a tax on the chemical and

petroleum industries to, among other purposes, establish a trust fund to provide for long-term cleanup of contaminated sites.

Chronic Wasting Disease: a contagious fatal neurological disease among deer and elk that produces small lesions in brains of infected animals. It is characterized by loss of body condition, behavioral abnormalities and death.

community: the locality in which a group of people resides and shares the same government.

vegetation community type: a particular assemblage of plants and animals, named for its dominant characteristic.

compatible use: "a wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge" (National Wildlife Refuge System Improvement Act of 1997 [Public Law 105-57; 111 Stat. 1253]).

compatibility determination: a required determination for wildlife-dependent recreational uses or any other public uses of a refuge before a use is allowed.

Comprehensive Conservation Plan: a document mandated by the National Wildlife Refuge System Improvement Act of 1997 that describes desired future conditions for a refuge unit, and provides long-range guidance for the unit leader to accomplish the mission of the System and the purpose(s) of the unit (P.L. 105-57; FWS Manual 602 FW 1.4).

concern: cf. "issue."

conservation: managing natural resources to prevent loss or waste (N.b. Management actions may include preservation, restoration, and enhancement).

conservation agreements: voluntary written agreements among two or more parties for the purpose of ensuring the survival and welfare of unlisted species of fish and wildlife or their habitats or to achieve other specified conservation goals.

conservation easement: a legal agreement between a landowner and a land trust (a private, nonprofit conservation organization) or government agency that permanently limits uses of a property to protect its conservation values.

cooperative agreement: the legal instrument used when the principal purpose of a transaction is the transfer of money, property, services, or anything of value to a recipient in order to accomplish a public purpose

authorized by Federal statute, and substantial involvement between the Service and the recipient is anticipated (cf. "grant agreement").

cultural resource: a general term applied to buildings, structures, landscape features, places, or other identifiable artifacts of scientific, aesthetic, educational, spiritual, archaeological, architectural, or historic significance. Can also be more narrowly defined to refer to a prehistoric or historic district, site, building, structure or object listed in or eligible for listing in the National Register of Historic Places.

designated wilderness area: an area designated by Congress as part of the National Wilderness Preservation System (FWS Manual 610 FW 1.5 [draft]).

disturbed area: an area where natural processes have been degraded or destroyed due to human impacts (e.g., mining, cultivation, development).

easement: an agreement by which landowners give up or sell one of the rights on their property (e.g., ditch owners may have an easement to maintain the waterway [cf. "conservation easement"]).

ecosystem: a natural community of organisms interacting with its physical environment, regarded as a unit.

endangered species: a Federal- or State-listed protected species that is in danger of extinction throughout all or a significant portion of its range.

environmental education: education aimed at producing a citizenry that is knowledgeable about the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution" (Stapp et al. 1969).

Environmental Impact Statement: (EIS) a detailed, written analysis of the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources (cf. 40 CFR 1508.11).

erosion: the detachment and movement of soil from the land by wind, water, or gravity.

extirpated: no longer occurring in a given geographic area.

Federal land: public land owned by the Federal Government, including national forests, national parks, and national wildlife refuges.

Federally listed species: a species listed either as endangered, threatened, or a species at risk (formerly, a "candidate species") under the Endangered Species Act of 1973, as amended.

geographic information system: (GIS) a computerized system to compile, store, analyze and display geographically referenced information (e.g., GIS can overlay multiple sets of information on the distribution of a variety of biological and physical features).

global positioning system: (GPS) a satellite-based navigation and positioning system that can be used to locate and store specific points on the earth. GPS technology can be used to create accurate maps of refuge resources or management issues (such as weed patches) that can be easily loaded onto a GIS for analysis.

habitat fragmentation: the breaking up of a specific habitat into smaller, unconnected areas (N.b. A habitat area that is too small may not provide enough space to maintain a breeding population of the species in question).

habitat conservation: protecting an animal or plant habitat to ensure that the use of that habitat by the animal or plant is not altered or reduced.

habitat: the place where a particular type of plant or animal lives.

hay meadow: reference to a 300-acre portion of Rocky Flats that was once cultivated for agriculture and is now comprised primarily of non-native smooth brome and crested wheatgrass. In its current condition, the hay meadow provides marginal wildlife habitat, though it does not adversely affect other Refuge resources.

informal monitoring: (see monitoring) the on-going observation of resource conditions and needs by Service staff that does not follow a pre-determined schedule or observation method.

Integrated Pest Management: (IPM) sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks.

interpretive facilities: structures that provide information about an event, place, or thing by a variety of means, including printed, audiovisual, or multimedia materials (e.g., kiosks that offer printed materials and audiovisuals, signs, and trail heads).

forbs: flowering plants (excluding grasses, sedges, and rushes) that do not have a woody stem and die back to the ground at the end of the growing season.

interpretive materials: any tool used to provide or clarify information, explain events or things, or increase

awareness and understanding of the events or things (e.g., printed materials like brochures, maps or curriculum materials; audio/visual materials like video and audio tapes, films, or slides; and, interactive multimedia materials, CD-ROM or other computer technology).

issue: any unsettled matter that requires a management decision (e.g., a Service initiative, an opportunity, a management problem, a threat to the resources of the unit, a conflict in uses, a public concern, or the presence of an undesirable resource condition).

local agencies: generally, municipal governments, regional planning commissions, or conservation groups.

long-term protection: mechanisms like fee title acquisition, conservation easements, or binding agreements with landowners that ensure land use and land management practices will remain compatible with maintaining species populations over the long term.

managed grazing: the use of livestock such as cattle or goats for purposes other than livestock production (including weed management and vegetative succession). Often requires fencing and moving animals in an organized fashion to achieve resource management objectives.

management alternative: a set of objectives and the strategies needed to accomplish each objective [FWS Manual 602 FW 1.4].

management concern: cf. "issue"; "migratory nongame birds of management concern."

management opportunity: cf. "issue."

management plan: a plan that guides future land management practices on a tract.

management strategy: a general approach to meeting unit objectives (N.b. A strategy may be broad, or it may be detailed enough to guide implementation through specific actions, tasks, and projects [FWS Manual 602 FW 1.4]).

mission statement: a succinct statement of the purpose for which the unit was established; its reason for being.

mitigation: actions taken to compensate for the negative effects of a particular project (e.g., wetland mitigation usually restores or enhances a previously damaged wetland or creates a new wetland).

mixed grassland prairie: a combination of several grassland communities, including mesic mixed grassland, short grassland, xeric needle and thread grassland, and reclaimed mixed grassland, that are composed of similar types of native and non-native grasses and have common

management requirements.

monitoring: the collection of scientific information to determine the effects of resource management actions and to identify changing resource conditions or needs.

multi-use trails: trails designated for a variety of uses including hiking, biking and, in some cases, equestrian use.

National Environmental Policy Act of 1969: (NEPA) requires all Federal agencies to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in planning and implementing environmental actions. (Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision-making [cf. 40 CFR 1500].)

National Register of Historic Places: Authorized under the National Historic Preservation Act of 1966, the National Register is the nation's official list of cultural resources worthy of preservation. National Register properties are distinguished by having been documented and evaluated according to uniform standards.

National Wildlife Refuge Complex: (Complex) an internal Service administrative linking of refuge units closely related by their purposes, goals, ecosystem, or geopolitical boundaries. In this case, referring to the Rocky Mountain Arsenal National Wildlife Refuge (NWR), Two Ponds NWR, and Rocky Flats NWR as a complex.

National Wildlife Refuge System: (System) all lands and waters and interests therein administered by the Service as wildlife refuges, wildlife ranges, wildlife management areas, waterfowl production areas, and other areas for the protection and conservation of fish and wildlife, including those that are threatened with extinction.

native species: a plant or animal that has grown in the region since the last glaciation and occurred before European settlement.

Notice of Intent: (NOI) an announcement published in the Federal Register that states what the an agency will prepare and review an environmental impact statement [40 CFR 1508.22].

noxious weeds: non-native species that have been introduced into an area and, because of their aggressive growth and lack of natural predators, displace native species.

objective: a concise statement of what the Service wants to achieve, how much to achieve, when and where to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Objectives are made to be attainable, time-specific, and measurable.

off-trail use: designated areas where visitors are permitted to traverse across the landscape and are not limited to the trail corridors.

outdoor classroom: an environmental education facility that provides learning space and storage for educational materials and props in the field.

overlook: A designated viewing area often furnished with a bench and interpretive signage.

partnership: a contract or agreement among two or more individuals, groups of individuals, organizations, or agencies, in which each agrees to furnish a part of the capital or some service in kind (e.g., labor) for a mutually beneficial enterprise.

patch: a relatively homogenous habitat area that is not interrupted by disturbance corridors such as roads, trails, or fences.

permitted mining use: an area in which an outside party owns the rights to subsurface minerals and a permit to mine those minerals. Mining could occur on these areas.

picocurie: A unit of measurement for radioactivity, equal to one trillionth of a curie (1×10^{-12}). A curie is a unit of radioactivity, based originally on the radioactivity of 1 gram of pure radium, equal to 37 billion disintegrations per second.

Planning Updates: newsletters distributed, primarily through mailing lists, in order to update the interested public on the status of the CCP project.

pre-settlement condition: a conceptual goal for habitat restoration based on ecological conditions that existed prior to ranching and modern use and disturbance of the site.

prescribed fire: the application of fire to wildland fuels, either by natural or intentional ignition, to achieve identified land use objectives (FWS Manual 621 FW 1.7).

private land: land owned by a private individual or group or non-government organization.

private landowner: cf. "private land."

private organization: any non-government organization.

Proposed Action (or alternative): activities for which an Environmental Impact Statement is being written; the alternative containing the actions and strategies recommended by the planning team. The proposed action is, for all proactive purposes, the draft CCP for the Refuge. (Referred to as the Preferred Alternative in the Final CCP/EIS).

pedestrian trails: trails designated for hiking use only and not opened to other modes of transportation such as biking or equestrian uses.

protection: mechanisms like fee title acquisition, conservation easements, or binding agreements with landowners that ensure land use and land management practices will remain compatible with maintaining species populations at a site (cf. "long-term")

public: individuals, organizations, and non-government groups; officials of Federal, State, and local government agencies; Native American tribes, and foreign nations includes anyone outside the core planning team, those who may or may not have indicated an interest in the issues and those who do or do not realize that our decisions may affect them.

public involvement: offering to interested individuals and organizations that our actions or policies may affect an opportunity to become informed; soliciting their opinion.

public involvement plan: long-term guidance for involving the public in the comprehensive planning process.

public land: land owned by the local, State, or Federal Government.

rare species: species identified for special management emphasis because of their uncommon occurrence.

rare community types: plant community types classified as rare by any State program (as used in CCPs, includes exemplary community types).

recommended wilderness: areas studied and found suitable for wilderness designation by both the Director (FWS) and Secretary (DOI), and recommended by the President to Congress for inclusion in the National Wilderness System (FWS Manual 610 FW 1.5 [draft]).

Record of Decision: (ROD) a concise public record of a decision by a Federal agency pursuant to NEPA. (N.b. A ROD includes: the decision; all the alternatives considered; the environmentally preferable alternative; a summary of monitoring and enforcement, where applicable, for any mitigation; and, whether all practical means have been adopted to avoid or minimize environmental harm from

the alternative selected [or if not, why not].)

refuge goals: "descriptive, open-ended, and often broad statements of desired future conditions that convey a purpose but do not define measurable units" (Writing Refuge Management Goals and Objectives: A Handbook).

refuge management economic activity: a management activity on a national wildlife refuge that results in the generation of a commodity which is or can be sold as income or revenue or can be traded for goods and services. Examples include: farming, grazing, haying, timber harvesting, and trapping.

Refuge Manager: the official directly in charge of a national wildlife refuge or a wildlife refuge complex.

refuge purposes: "The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge subunit" (National Wildlife Refuge System Improvement Act of 1997).

refuge lands: lands in which the Service holds full interest in fee title or partial interest like an easement.

refuge use: a recreational use (including actions associated with a recreational use or other general public use), or refuge management economic activity.

Regional Chief: the official in charge of the National Wildlife Refuge System within a Region of the U.S. Fish and Wildlife Service.

relative cover: a measure of abundance for individual plant species or group of species of interest in a specified area, relative to the total cover all species. Can be expressed as a percentage.

restoration: the artificial manipulation of habitat to restore it to its former condition (e.g., restoration may involve planting native grasses and forbs, removing shrubs, prescribed burning, or re-establishing habitat for native plants and animals on degraded grassland).

restored stream crossing: obstructions such as culverts, roads and trails are removed or restructured to allow stream flows to return to a more natural condition.

revegetation: the process of establishing a native plant community in an area that was formerly disturbed. May involve removing existing non-native vegetation, grading, soil preparation, seeding, and supplemental irrigation.

RFCA Parties: the agencies that are signatories to the Rocky Flats Cleanup Agreement: U.S. Department of

Energy, Environmental Protection Agency, and the Colorado Department of Public Health and Environment.

riparian area: see riparian habitat.

riparian habitat: habitat along the banks of a stream or river that is characterized by trees and shrubs (such as cottonwood and willow) that grow in moist conditions.

right of way: that land on which a public road may be built within The Refuge boundary.

runoff: water from rain, melted snow, or agricultural or landscape irrigation that flows over a land surface into a water body (cf. "urban runoff").

scoping: the process used at the beginning of a planning process to engage the public and other agencies to determine the scope and significant issues to be addressed in the plan and analyzed in the EIS.

seasonal closures: areas and/or trails closed for the protection of wildlife based on their annual life cycles and habitat needs. Closures are seasonal and are determined by Refuge staff.

sedimentation: the introduction of eroded soil particles to a water body which can result in increased turbidity (cloudiness) and affect aquatic plants and animals.

Service presence: Service programs and facilities that it directs or shares with other organizations; public awareness of the Service as a sole or cooperative provider of programs and facilities.

site improvement: any activity that changes the condition of an existing site to better interpret events, places, or things related to a refuge (e.g., improving safety and access, replacing non-native with native plants, refurbishing footbridges and trail ways, and renovating or expanding exhibits).

Refuge mailing list: A list containing names and addresses of people with an interest in the Refuge. As part of the planning process, the list was continually updated to include conservation agencies, recreation interests, Congressionals, workbook respondents, open house/focus group attendees, etc.

social trail: unplanned trails that develop informally through repeated use. Are commonly formed between planned trails and points of interest.

soil productivity: The overall productive status of a soil arising from all aspects of its quality, such as its physical and structural condition as well as its chemical content.

species of concern: species not federally listed as threatened or endangered, but about which the Service or

our partners are concerned.

stabilization: reinforcing a building (e.g., Lindsay Barn) to avoid further deterioration of its structural integrity.

State agencies: generally, natural resource agencies of State governments.

State land: State-owned public land.

State-listed species: cf. Wildlife species that are listed as threatened or endangered within the State of Colorado by the Colorado Division of Wildlife.

step-down management plan: a plan for dealing with specific refuge management subjects, strategies, and schedules, e.g., hunting, vegetation and fire (FWS Manual 602 FW 1.4).

target population: the preferred number of animals (deer or elk) that live on the Refuge, as determined by Service and CDOW staff based on fluctuating habitat conditions.

threatened species: a Federally listed, protected species that is likely to become an endangered species in all or a significant portion of its range.

urban runoff: water from rain, melted snow, or landscape irrigation flowing from city streets and domestic or commercial properties that may carry pollutants into a sewer system or water body.

vision statement: a concise statement of what the unit could achieve in the next 10 to 15 years.

visitor center: a permanently staffed building offering exhibits and interpretive information to the visiting public. Some visitor centers are co-located with refuge offices, others include additional facilities such as classrooms or wildlife viewing areas.

visitor contact station: compared to a visitor center, a contact station is a smaller facility that may not be permanently staffed.

viewing blind: a structure that provides shelter and a suitable vantage for wildlife observation and photography.

warm-season grass: native prairie grass that grows the most during summer, when cool-season grasses are dormant.

trail connections: trailheads along the refuge boundary that provide a link to outlying trail systems.

watchable wildlife: wildlife that are visible and enjoyed by Refuge visitors. A watchable wildlife program is one that helps maintain viable populations of all native fish and wildlife species by building an active, well-informed

constituency for conservation. Watchable wildlife programs are tools for meeting wildlife conservation goals while at the same time fulfilling public demand for wildlife-dependent recreational activities (other than sport hunting, sport fishing, or trapping).

water bar: a constructed trail structure that diverts water off of the trail surface. May consist of a earthen berm, rock, wood, or other materials.

watershed: the geographic area within which water drains into a particular river, stream, or body of water; land and the body of water into which the land drains.

wetlands: lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water" (Cowardin et al 1979).

wilderness: cf. "designated wilderness."

wildfire: a free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands (FWS Manual 621 FW 1.7).

wildland fire: every wildland fire is either a wildfire or a prescribed fire (FWS Manual 621 FW 1.3).

wildlife management: manipulating wildlife populations, either directly by regulating the numbers, ages, and sex ratios harvested, or indirectly by providing favorable habitat conditions and alleviating limiting factors.

wildlife-dependent recreation: recreational experiences in which wildlife is the focus. The terms "wildlife-dependent recreation" and "wildlife-dependent recreational use" mean a use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation (National Wildlife Refuge System Improvement Act of 1997).

appendices



appendix a

Refuge Legislation

PUBLIC LAW 107–107—DEC. 28, 2001

115 STAT. 1379

defense plutonium or defense plutonium materials to the Savannah River Site during the period beginning on February 1, 2002, and ending on the date on which such plans are submitted to Congress.

(g) **RULE OF CONSTRUCTION.**—Nothing in this section may be construed to prohibit or limit the Secretary from shipping defense plutonium or defense plutonium materials to sites other than the Savannah River Site during the period referred to in subsection (f) or any other period.

(h) **ANNUAL REPORT ON FUNDING FOR FISSILE MATERIALS DISPOSITION ACTIVITIES.**—The Secretary shall include with the budget justification materials submitted to Congress in support of the Department of Energy budget for each fiscal year (as submitted with the budget of the President under section 1105(a) of title 31, United States Code) a report setting forth the extent to which amounts requested for the Department for such fiscal year for fissile materials disposition activities will enable the Department to meet commitments for the disposition of surplus defense plutonium and defense plutonium materials located at the Savannah River Site, and for any other fissile materials disposition activities, in such fiscal year.

SEC. 3156. MODIFICATION OF DATE OF REPORT OF PANEL TO ASSESS THE RELIABILITY, SAFETY, AND SECURITY OF THE UNITED STATES NUCLEAR STOCKPILE.

Section 3159(d) of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (Public Law 105–261; 42 U.S.C. 2121 note) is amended by striking “of each year, beginning with 1999,” and inserting “of 1999 and 2000, and not later than February 1, 2002,”.

Subtitle F—Rocky Flats National Wildlife Refuge

Rocky Flats
National Wildlife
Refuge Act of
2001.
16 USC 668dd
note.

SEC. 3171. SHORT TITLE.

This subtitle may be cited as the “Rocky Flats National Wildlife Refuge Act of 2001”.

SEC. 3172. FINDINGS AND PURPOSES.

(a) **FINDINGS.**—Congress finds the following:

(1) The Federal Government, through the Atomic Energy Commission, acquired the Rocky Flats site in 1951 and began operations there in 1952. The site remains a Department of Energy facility. Since 1992, the mission of the Rocky Flats site has changed from the production of nuclear weapons components to cleanup and closure in a manner that is safe, environmentally and socially responsible, physically secure, and cost-effective.

(2) The majority of the Rocky Flats site has generally remained undisturbed since its acquisition by the Federal Government.

(3) The State of Colorado is experiencing increasing growth and development, especially in the metropolitan Denver Front Range area in the vicinity of the Rocky Flats site. That growth and development reduces the amount of open space and thereby diminishes for many metropolitan Denver communities the vistas of the striking Front Range mountain backdrop.

115 STAT. 1380

PUBLIC LAW 107-107—DEC. 28, 2001

(4) Some areas of the Rocky Flats site contain contamination and will require further response action. The national interest requires that the ongoing cleanup and closure of the entire site be completed safely, effectively, and without unnecessary delay and that the site thereafter be retained by the United States and managed so as to preserve the value of the site for open space and wildlife habitat.

(5) The Rocky Flats site provides habitat for many wildlife species, including a number of threatened and endangered species, and is marked by the presence of rare xeric tallgrass prairie plant communities. Establishing the site as a unit of the National Wildlife Refuge System will promote the preservation and enhancement of those resources for present and future generations.

(b) PURPOSES.—The purposes of this subtitle are—

(1) to provide for the establishment of the Rocky Flats site as a national wildlife refuge following cleanup and closure of the site;

(2) to create a process for public input on the management of the refuge referred to in paragraph (1) before transfer of administrative jurisdiction to the Secretary of the Interior; and

(3) to ensure that the Rocky Flats site is thoroughly and completely cleaned up.

SEC. 3173. DEFINITIONS.

In this subtitle:

(1) CERCLA.—The term “CERCLA” means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.).

(2) CLEANUP AND CLOSURE.—The term “cleanup and closure” means the response actions for covered substances carried out at Rocky Flats, as required by any of the following:

(A) The RFCA.

(B) CERCLA.

(C) RCRA.

(D) The Colorado Hazardous Waste Act, 25-15-101 to 25-15-327, Colorado Revised Statutes.

(3) COVERED SUBSTANCE.—The term “covered substance” means any of the following:

(A) Any hazardous substance, as such term is defined in paragraph (14) of section 101 of CERCLA (42 U.S.C. 9601).

(B) Any pollutant or contaminant, as such term is defined in paragraph (33) of such section 101.

(C) Any petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) of such section 101.

(4) RCRA.—The term “RCRA” means the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.), popularly known as the Resource Conservation and Recovery Act.

(5) REFUGE.—The term “refuge” means the Rocky Flats National Wildlife Refuge established under section 3177.

(6) RESPONSE ACTION.—The term “response action” means any of the following:

PUBLIC LAW 107–107—DEC. 28, 2001

115 STAT. 1381

(A) A response, as such term is defined in paragraph (25) of section 101 of CERCLA (42 U.S.C. 9601).

(B) A corrective action under RCRA or under the Colorado Hazardous Waste Act, 25–15–101 to 25–15–327, Colorado Revised Statutes.

(C) Any requirement for institutional controls imposed by any of the laws referred to in subparagraph (A) or (B).

(7) RFCA.—The term “RFCA” means the Rocky Flats Cleanup Agreement, an intergovernmental agreement, dated July 19, 1996, among—

(A) the Department of Energy;

(B) the Environmental Protection Agency; and

(C) the Department of Public Health and Environment of the State of Colorado.

(8) ROCKY FLATS.—

(A) IN GENERAL.—Except as provided in subparagraph (B), the term “Rocky Flats” means the Rocky Flats Environmental Technology Site, Colorado, a defense nuclear facility, as depicted on the map titled “Rocky Flats Environmental Technology Site”, dated October 22, 2001, and available for inspection in the appropriate offices of the United States Fish and Wildlife Service.

(B) EXCLUSIONS.—The term “Rocky Flats” does not include—

(i) the land and facilities of the Department of Energy’s National Renewable Energy Laboratory, including the acres retained by the Secretary under section 3174(f); and

(ii) any land and facilities not within the boundaries depicted on the map referred to in subparagraph (A).

(9) SECRETARY.—The term “Secretary” means the Secretary of Energy.

SEC. 3174. FUTURE OWNERSHIP AND MANAGEMENT.

(a) FEDERAL OWNERSHIP.—Except as expressly provided in this subtitle, all right, title, and interest of the United States, held on or acquired after the date of the enactment of this Act, to land or interest therein, including minerals, within the boundaries of Rocky Flats shall be retained by the United States.

(b) LINDSAY RANCH.—The structures that comprise the former Lindsay Ranch homestead site in the Rock Creek Reserve area of the buffer zone, as depicted on the map referred to in section 3173(8)(A), shall be permanently preserved and maintained in accordance with the National Historic Preservation Act (16 U.S.C. 470 et seq.).

(c) PROHIBITION ON ANNEXATION.—Neither the Secretary nor the Secretary of the Interior shall allow the annexation of land within the refuge by any unit of local government.

(d) PROHIBITION ON THROUGH ROADS.—Except as provided in subsection (e), no public road shall be constructed through Rocky Flats.

(e) TRANSPORTATION RIGHT-OF-WAY.—

(1) IN GENERAL.—

115 STAT. 1382

PUBLIC LAW 107-107—DEC. 28, 2001

(A) AVAILABILITY OF LAND.—On submission of an application meeting each of the conditions specified in paragraph (2), the Secretary, in consultation with the Secretary of the Interior, shall make available land along the eastern boundary of Rocky Flats for the sole purpose of transportation improvements along Indiana Street.

(B) BOUNDARIES.—Land made available under this paragraph may not extend more than 300 feet from the west edge of the Indiana Street right-of-way, as that right-of-way exists as of the date of the enactment of this Act.

(C) EASEMENT OR SALE.—Land may be made available under this paragraph by easement or sale to one or more appropriate entities.

(D) COMPLIANCE WITH APPLICABLE LAW.—Any action under this paragraph shall be taken in compliance with applicable law.

(2) CONDITIONS.—An application referred to in paragraph (1) meets the conditions specified in this paragraph if the application—

(A) is submitted by any county, city, or other political subdivision of the State of Colorado; and

(B) includes documentation demonstrating that the transportation improvements for which the land is to be made available—

(i) are carried out so as to minimize adverse effects on the management of Rocky Flats as a wildlife refuge; and

(ii) are included in the regional transportation plan of the metropolitan planning organization designated for the Denver metropolitan area under section 5303 of title 49, United States Code.

(f) WIND TECHNOLOGY EXPANSION AREA.—The Secretary shall retain, for the use of the National Renewable Energy Laboratory, the approximately 25 acres identified on the map referred to in section 3173(8)(A) as the “Wind Technology Expansion Area”.

SEC. 3175. TRANSFER OF MANAGEMENT RESPONSIBILITIES AND JURISDICTION OVER ROCKY FLATS.

(a) TRANSFER REQUIRED.—

(1) IN GENERAL.—Subject to the other provisions of this section, the Secretary shall transfer administrative jurisdiction over the property that is to comprise the refuge to the Secretary of the Interior.

(2) DATE OF TRANSFER.—The transfer shall be carried out not earlier than the completion certification date, and not later than 30 business days after that date.

(3) COMPLETION CERTIFICATION DATE.—For purposes of paragraph (2), the completion certification date is the date on which the Administrator of the Environmental Protection Agency certifies to the Secretary and to the Secretary of the Interior that cleanup and closure at Rocky Flats has been completed, except for the operation and maintenance associated with response actions, and that all response actions are operating properly and successfully.

(b) MEMORANDUM OF UNDERSTANDING.—

(1) REQUIRED ELEMENTS.—The transfer required by subsection (a) shall be carried out pursuant to a memorandum

PUBLIC LAW 107–107—DEC. 28, 2001

115 STAT. 1383

of understanding between the Secretary and the Secretary of the Interior. The memorandum of understanding shall—

(A) provide for the division of responsibilities between the Secretary and the Secretary of the Interior necessary to carry out such transfer;

(B) address the impacts that any property rights referred to in section 3179(a) may have on the management of the refuge, and provide strategies for resolving or mitigating these impacts;

(C) identify the land the administrative jurisdiction of which is to be transferred to the Secretary of the Interior; and

(D) specify the allocation of the Federal costs incurred at the refuge after the date of such transfer for any site investigations, response actions, and related activities for covered substances.

(2) PUBLICATION OF DRAFT.—Not later than one year after the date of the enactment of this Act, the Secretary and the Secretary of the Interior shall publish in the Federal Register a draft of the memorandum of understanding.

(3) FINALIZATION AND IMPLEMENTATION.—

(A) Not later than 18 months after the date of the enactment of this Act, the Secretary and Secretary of the Interior shall finalize and implement the memorandum of understanding.

(B) In finalizing the memorandum of understanding, the Secretary and Secretary of the Interior shall specifically identify the land the administrative jurisdiction of which is to be transferred to the Secretary of the Interior and provide for a determination of the exact acreage and legal description of such land by a survey mutually satisfactory to the Secretary and the Secretary of the Interior.

(c) TRANSFER OF IMPROVEMENTS.—The transfer required by subsection (a) may include such buildings or other improvements as the Secretary of the Interior has requested in writing for purposes of managing the refuge.

(d) PROPERTY RETAINED FOR RESPONSE ACTIONS.—

(1) IN GENERAL.—The transfer required by subsection (a) shall not include, and the Secretary shall retain jurisdiction, authority, and control over, the following real property and facilities at Rocky Flats:

(A) Any engineered structure, including caps, barrier walls, and monitoring or treatment wells, to be used in carrying out a response action for covered substances.

(B) Any real property or facility to be used for any other purpose relating to a response action or any other action that is required to be carried out by the Secretary at Rocky Flats.

(2) CONSULTATION.—The Secretary shall consult with the Secretary of the Interior, the Administrator of the Environmental Protection Agency, and the Governor of the State of Colorado on the identification of all real property and facilities to be retained under this subsection.

(e) COST.—The transfer required by subsection (a) shall be completed without cost to the Secretary of the Interior.

(f) NO REDUCTION IN FUNDS.—The transfer required by subsection (a), and the memorandum of understanding required by

115 STAT. 1384

PUBLIC LAW 107-107—DEC. 28, 2001

subsection (b), shall not result in any reduction in funds available to the Secretary for cleanup and closure of Rocky Flats.

SEC. 3176. ADMINISTRATION OF RETAINED PROPERTY; CONTINUATION OF CLEANUP AND CLOSURE.

(a) ADMINISTRATION OF RETAINED PROPERTY.—

(1) IN GENERAL.—In administering the property retained under section 3175(d), the Secretary shall consult with the Secretary of the Interior to minimize any conflict between—

(A) the administration by the Secretary of such property for a purpose relating to a response action; and

(B) the administration by the Secretary of the Interior of land the administrative jurisdiction of which is transferred under section 3175(a).

(2) PRIORITY IN CASE OF CONFLICT.—In the case of any such conflict, the Secretary and the Secretary of the Interior shall ensure that the administration for a purpose relating to a response action, as described in paragraph (1)(A), shall take priority.

(3) ACCESS.—The Secretary of the Interior shall provide to the Secretary such access and cooperation with respect to the refuge as the Secretary requires to carry out operation and maintenance, future response actions, natural resources restoration, or any other obligations.

(b) ONGOING CLEANUP AND CLOSURE.—

(1) IN GENERAL.—The Secretary shall carry out to completion cleanup and closure at Rocky Flats.

(2) CLEANUP LEVELS.—The Secretary shall carry out such cleanup and closure to the levels established for soil, water, and other media, following a thorough review by the parties to the RFCA and the public (including the United States Fish and Wildlife Service and other interested government agencies) of the appropriateness of the interim levels in the RFCA.

(3) NO RESTRICTION ON USE OF NEW TECHNOLOGIES.—Nothing in this subtitle, and no action taken under this subtitle, restricts the Secretary from using at Rocky Flats any new technology that may become available for remediation of contamination.

(c) OPPORTUNITY TO COMMENT.—The Secretary of the Interior shall have the opportunity to comment with respect to any proposed response action as to the impacts, if any, of such proposed response action on the refuge.

(d) RULES OF CONSTRUCTION.—

(1) NO RELIEF FROM OBLIGATIONS UNDER OTHER LAW.—Nothing in this subtitle, and no action taken under this subtitle—

(A) relieves the Secretary, the Administrator of the Environmental Protection Agency, the Secretary of the Interior, or any other person from any obligation or other liability with respect to Rocky Flats under the RFCA or any Federal or State law;

(B) impairs or alters any provision of the RFCA; or

(C) alters any authority of the Administrator of the Environmental Protection Agency under section 120(e) of CERCLA (42 U.S.C. 9620(e)), or any authority of the State of Colorado.

PUBLIC LAW 107-107—DEC. 28, 2001

115 STAT. 1385

(2) **CLEANUP LEVELS.**—Nothing in this subtitle shall reduce the level of cleanup and closure at Rocky Flats required under the RFCA or any Federal or State law.

(3) **PAYMENT OF RESPONSE ACTION COSTS.**—Nothing in this subtitle affects the obligation of a Federal department or agency that had or has operations at Rocky Flats resulting in the release or threatened release of a covered substance to pay the costs of response actions carried out to abate the release of, or clean up, the covered substance.

SEC. 3177. ROCKY FLATS NATIONAL WILDLIFE REFUGE.

(a) **IN GENERAL.**—On completion of the transfer required by section 3175(a), and subject to section 3176(a), the Secretary of the Interior shall commence administration of the real property comprising the refuge in accordance with this subtitle.

(b) **ESTABLISHMENT OF REFUGE.**—Not later than 30 days after the transfer required by section 3175(a), the Secretary of the Interior shall establish at Rocky Flats a national wildlife refuge to be known as the Rocky Flats National Wildlife Refuge.

(c) **COMPOSITION.**—The refuge shall be comprised of the property the administrative jurisdiction of which was transferred as required by section 3175(a).

(d) **NOTICE.**—The Secretary of the Interior shall publish in the Federal Register a notice of the establishment of the refuge.

(e) **ADMINISTRATION AND PURPOSES.**—

(1) **IN GENERAL.**—The Secretary of the Interior shall manage the refuge in accordance with applicable law, including this subtitle, the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd et seq.), and the purposes specified in that Act.

(2) **REFUGE PURPOSES.**—The refuge shall be managed for the purposes of—

(A) restoring and preserving native ecosystems;

(B) providing habitat for, and population management of, native plants and migratory and resident wildlife;

(C) conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)); and

(D) providing opportunities for compatible scientific research.

(3) **MANAGEMENT.**—In managing the refuge, the Secretary of the Interior shall—

(A) ensure that wildlife-dependent recreation and environmental education and interpretation are the priority public uses of the refuge; and

(B) comply with all response actions.

SEC. 3178. COMPREHENSIVE PLANNING PROCESS.

(a) **IN GENERAL.**—Not later than 180 days after the date of the enactment of this Act, in developing a comprehensive conservation plan for the refuge in accordance with section 4(e) of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd(e)), the Secretary of the Interior shall establish a comprehensive planning process that involves the public and local communities. The Secretary of the Interior shall establish such process in consultation with the Secretary, the members of the Coalition, the Governor of the State of Colorado, and the Federal Deadline.

115 STAT. 1386

PUBLIC LAW 107-107—DEC. 28, 2001

and State of Colorado officials who have been designated as trustees for Rocky Flats under section 107(f)(2) of CERCLA (42 U.S.C. 9607(f)(2)).

(b) OTHER PARTICIPANTS.—In addition to the entities specified in subsection (a), the comprehensive planning process required by subsection (a) shall include the opportunity for direct involvement of entities that are not members of the Coalition as of the date of the enactment of this Act, including the Rocky Flats Citizens' Advisory Board and the cities of Thornton, Northglenn, Golden, Louisville, and Lafayette, Colorado.

(c) DISSOLUTION OF COALITION.—If the Coalition dissolves, or if any Coalition member elects to leave the Coalition during the comprehensive planning process required by subsection (a)—

(1) such comprehensive planning process shall continue; and

(2) an opportunity shall be provided to each entity that is a member of the Coalition as of September 1, 2000, for direct involvement in such comprehensive planning process.

(d) CONTENTS.—In addition to the requirements of section 4(e) of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd(e)), the comprehensive conservation plan referred to in subsection (a) shall address and make recommendations on the following:

(1) The identification of any land referred to in subsection (e) of section 3174 that could be made available under that subsection.

(2) The characteristics and configuration of any perimeter fencing that may be appropriate or compatible for cleanup and closure purposes, refuge purposes, or other purposes.

(3) The feasibility of locating, and the potential location for, a visitor and education center at the refuge.

(4) Any other issues relating to Rocky Flats.

(e) COALITION DEFINED.—In this section, the term "Coalition" means the Rocky Flats Coalition of Local Governments established by the Intergovernmental Agreement, dated February 16, 1999, among—

- (1) the city of Arvada, Colorado;
- (2) the city of Boulder, Colorado;
- (3) the city of Broomfield, Colorado;
- (4) the city of Westminster, Colorado;
- (5) the town of Superior, Colorado;
- (6) Boulder County, Colorado; and
- (7) Jefferson County, Colorado.

Deadline.

(f) REPORT.—Not later than three years after the date of the enactment of this Act, the Secretary of the Interior shall submit to Congress—

(1) the comprehensive conservation plan referred to in subsection (a); and

(2) a report that contains—

(A) an outline of the involvement of the public and local communities in the comprehensive planning process, as required by subsection (a);

(B) to the extent that any input or recommendation from the comprehensive planning process is not accepted, a clear statement of the reasons why such input or recommendation is not accepted; and

PUBLIC LAW 107-107—DEC. 28, 2001

115 STAT. 1387

(C) a discussion of the impacts of any property rights referred to in section 3179(a) on management of the refuge, and an identification of strategies for resolving and mitigating these impacts.

SEC. 3179. PROPERTY RIGHTS.

(a) **IN GENERAL.**—Except as provided in subsections (c) and (d), nothing in this subtitle limits any valid, existing property right at Rocky Flats that is owned by any person or entity, including, but not limited to—

- (1) any mineral right;
- (2) any water right or related easement; and
- (3) any facility or right-of-way for a utility.

(b) **ACCESS.**—Except as provided in subsection (c), nothing in this subtitle affects any right of an owner of a property right referred to in subsection (a) to access the owner's property.

(c) **REASONABLE CONDITIONS.**—

(1) **IN GENERAL.**—The Secretary or the Secretary of the Interior may impose such reasonable conditions on access to property rights referred to in subsection (a) as are appropriate for the cleanup and closure of Rocky Flats and for the management of the refuge.

(2) **NO EFFECT ON OTHER LAW.**—Nothing in this subtitle affects any Federal, State, or local law (including any regulation) relating to the use, development, and management of property rights referred to in subsection (a).

(3) **NO EFFECT ON ACCESS RIGHTS.**—Nothing in this subsection precludes the exercise of any access right, in existence on the date of the enactment of this Act, that is necessary to perfect or maintain a water right in existence on that date.

(d) **UTILITY EXTENSION.**—

(1) **IN GENERAL.**—The Secretary or the Secretary of the Interior may allow not more than one extension from an existing utility right-of-way on Rocky Flats, if necessary.

(2) **CONDITIONS.**—An extension under paragraph (1) shall be subject to the conditions specified in subsection (c).

(e) **EASEMENT SURVEYS.**—Subject to subsection (c), until the date that is 180 days after the date of the enactment of this Act, an entity that possesses a decreed water right or prescriptive easement relating to land at Rocky Flats may carry out such surveys at Rocky Flats as the entity determines are necessary to perfect the right or easement.

SEC. 3180. LIABILITIES AND OTHER OBLIGATIONS.

(a) **IN GENERAL.**—Nothing in this subtitle shall relieve, and no action may be taken under this subtitle to relieve, the Secretary, the Secretary of the Interior, or any other person from any liability or other obligation at Rocky Flats under CERCLA, RCRA, or any other Federal or State law.

(b) **COST RECOVERY, CONTRIBUTION, AND OTHER ACTION.**—Nothing in this subtitle is intended to prevent the United States from bringing a cost recovery, contribution, or other action that would otherwise be available under Federal or State law.

SEC. 3181. ROCKY FLATS MUSEUM.

(a) **MUSEUM.**—To commemorate the contribution that Rocky Flats and its worker force provided to winning the Cold War and

115 STAT. 1388

PUBLIC LAW 107-107—DEC. 28, 2001

the impact that such contribution has had on the nearby communities and the State of Colorado, the Secretary may establish a Rocky Flats Museum.

(b) LOCATION.—The Rocky Flats Museum shall be located in the city of Arvada, Colorado, unless, after consultation under subsection (c), the Secretary determines otherwise.

(c) CONSULTATION.—The Secretary shall consult with the city of Arvada, other local communities, and the Colorado State Historical Society on—

(1) the development of the museum;

(2) the siting of the museum; and

(3) any other issues relating to the development and construction of the museum.

(d) REPORT.—Not later than three years after the date of the enactment of this Act, the Secretary, in coordination with the city of Arvada, shall submit to Congress a report on the costs associated with the construction of the museum and any other issues relating to the development and construction of the museum.

SEC. 3182. ANNUAL REPORT ON FUNDING.

For each of fiscal years 2003 through 2007, at the time of submission of the budget of the President under section 1105(a) of title 31, United States Code, for such fiscal year, the Secretary and the Secretary of the Interior shall jointly submit to Congress a report on the costs of implementation of this subtitle. The report shall include—

(1) the costs incurred by each Secretary in implementing this subtitle during the preceding fiscal year; and

(2) the funds required by each Secretary to implement this subtitle during the current and subsequent fiscal years.

TITLE XXXII—DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Sec. 3201. Authorization.

SEC. 3201. AUTHORIZATION.

There are authorized to be appropriated for fiscal year 2002, \$18,500,000 for the operation of the Defense Nuclear Facilities Safety Board under chapter 21 of the Atomic Energy Act of 1954 (42 U.S.C. 2286 et seq.).

TITLE XXXIII—NATIONAL DEFENSE STOCKPILE

Sec. 3301. Definitions.

Sec. 3302. Authorized uses of stockpile funds.

Sec. 3303. Authority to dispose of certain materials in National Defense Stockpile.

Sec. 3304. Revision of limitations on required disposals of certain materials in National Defense Stockpile.

Sec. 3305. Acceleration of required disposal of cobalt in National Defense Stockpile.

Sec. 3306. Restriction on disposal of manganese ferro.

50 USC 98d note.

SEC. 3301. DEFINITIONS.

In this title:

appendix b

Compatibility Determinations

COMPATIBILITY DETERMINATION

Use:	Hunting
Refuge Name:	Rocky Flats National Wildlife Refuge Jefferson and Boulder Counties, Colorado
Establishing Authority:	Rocky Flats National Wildlife Refuge Act of 2001 (P.L. 107-107)
Refuge Purposes:	<ol style="list-style-type: none"> 1. Restoring and preserving native ecosystems. 2. Providing habitat for, and population management of, native plants, and migratory and resident wildlife. 3. Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)). 4. Providing opportunities for compatible scientific research.

NWRS Mission: "...to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats, of the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2)).

Description of Use: The Refuge will administer a limited big game (mule deer and elk) hunting program for youth and disabled hunters. The program may be expanded after year 2 to include able-bodied hunters, if needed to control ungulate populations in order to meet wildlife management goals.

A maximum of 10 hunter/participants would be allowed per hunt. There will be two hunts per year (one for youth and one for disabled hunters). Each hunt will last for 1 weekend, including a Saturday and Sunday. Hunts will be scheduled during the period October 15 - January 15 annually.

Weapons will be limited to: shotguns (20 gauge or larger), firing single projectiles; and archery (bow and arrow). No centerfire rifles or muzzleloading rifles will be allowed. Disabled hunters may be authorized to use centerfire handguns or cross-bow archery tackle, determined on a case-by-case basis, depending on the nature of the hunter's disability.

All weapons will meet requirements of the Colorado Division of Wildlife, (CDOW) for the species hunted.

The Rocky Flats NWR program will be highly managed. Permits/licenses will be issued by drawing cooperatively administered by the Refuge and CDOW. All hunters will be required to check-in prior to hunting and attend a safety/orientation briefing, and check-out at the end of each hunt day.

Youth hunters will be required to hunt with a mentor and disabled hunters will be required to have a volunteer to assist them. There will be a minimum ratio of 1 Refuge or CDOW staff present on-site for every 3 hunter participants.

Each hunter will be assigned to a unique hunting zone within the Refuge for his/her exclusive use and is restricted to hunting in that zone.

Hunters will be required to present all harvested game for inspection and collection of biological data, including sampling for Chronic Wasting Disease.

Other authorized public uses of the Refuge will be suspended and the Refuge will be closed for any non-hunting public use activities on hunt weekends.

Hunt dates, bag limits, hunter quotas, and any adjustments to Refuge Hunt Zones will be determined on an annual basis, in consultation with CDOW.

Availability of Resources: It is anticipated that annual planning and execution of the proposed hunting program will require approximately 20 staff-days of work, spread among the Refuge Manager, Biological, Visitor Services and Law Enforcement staff and cost approximately \$5,000 to operate. Refuge O&M resources are expected to be augmented by the services and volunteers and partnership with CDOW and conservation organizations.

This is a “pre-acquisition” compatibility determination, prepared to accompany the Comprehensive Conservation Plan (CCP) for the future Rocky Flats NWR. No facility development will be required to operate the proposed hunting program and funds are anticipated to be available for the operation of this program based on the Refuge staffing levels and budget proposed in the CCP.

Anticipated Impacts: This limited big game hunting program is anticipated to have minimal potential impacts on Refuge wildlife, but potentially significant beneficial impacts on the unique flora of the Refuge. The proposed use is a Wildlife-Dependent Recreational Use and a Priority Public Use of the NWRS.

The Rocky Flats site has supported a mule deer herd numbering approximately 160 animals (on 6,240 acres) since at least the late 1990s (Kaiser Hill 2001). Small, but increasing numbers of white-tailed deer also occur on the site. Prior to 2002, elk were known to visit Rocky Flats, but were not considered to be a resident species by DOE (DOE 1997). During the winter of 2002 - 2003, significant numbers of elk were observed regularly on the east side of Highway 93 adjacent to Rocky Flats and at least 9 cow elk are known to have calved on the site in the summer of 2003.

The future Refuge is bordered by public conservation lands to the north and west. Fencing is typical stock fencing that does not impede movement of ungulates. Although there is potential for future commercial development on the west side of the site, it is anticipated that deer, elk and other large mammals will continue to be able to move freely between the Refuge and adjacent public lands, and into the Roosevelt National Forest to the west.

The Refuge is located in CDOW’s Game Management Unit (GMU) No. 38, and adjacent to GMU 29. Those two GMUs make up CDOW’s Data Analysis Unit (DAU) D-27 which covers to the Boulder Deer Herd. CDOW has published the Boulder Deer Herd Management Plan (CDOW 2002). DAU D-27 lies at the edge of the endemic area for Chronic Wasting Disease (CWD) in northeast Colorado. The plan focuses on keeping the prevalence of CWD in the Boulder Deer Herd at no more than 1% infection rate and the Boulder Deer Herd.

In December 2002, 26 deer were collected at Rocky Flats, by CDOW as part of the state’s CWD surveillance program. All animals harvested were negative for CWD.

Under the Region 6 CWD Policy, it will be necessary to continue surveillance of the Refuge herds for occurrence and prevalence of CWD. Hunter-harvested deer and elk will provide data for this surveillance requirement and reduce or eliminate the need for Refuge staff to take deer for CWD surveillance purposes.

Colorado has the largest elk population of any state or province in North America. The current Colorado elk herd is far above CDOW’s objective level, and CDOW has taken aggressive action in recent years to reduce the herd through sport hunting. Increasingly, elk are becoming established in suburban and agricultural areas along the Front Range. Elk in the cities of Evergreen and Estes Park, and a newly established population near Loveland, Colorado are creating numerous depredation issues. In Rocky Mountain National Park, the unharvested elk herd is destroying important riparian habitat.

It will be important to prevent or control the establishment of a resident elk herd on the Refuge. Year-round grazing and browsing by elk has the potential to significantly degrade rare plant communities and destroy or reduce the quality of Preble's meadow jumping mouse on the Refuge.

Hunting will have a positive impact on habitats by controlling ungulate grazing and browsing pressure on the Refuge. Direct impacts of the hunting program will be insignificant because of the timing (during Preble's meadow jumping mouse hibernation and outside the bird nesting season) and small number of participants walking through upland and riparian areas. The program will require no facility development or conversion of habitat areas to administrative use.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

At four public hearings, and throughout the comment period for the Draft CCP/EIS for Rocky Flats NWR, significant public input was received regarding the provisions in the Proposed Action to provide a hunting program at Rocky Flats NWR. None of the comments received were specifically addressed to the Draft Compatibility Determination that was published with the Draft CCP/EIS. However, several individuals and organizations expressed the opinion that hunting, in general, is not a compatible use of the National Wildlife Refuge System. All public testimony presented at the hearings and written comments received and responses are reported in Appendix H, Comments and Responses on the Draft Environmental Impact Statement (EIS), of the Final EIS for the Rocky Flats NWR Comprehensive Conservation Plan.

Numerous public comments were received both in favor and in opposition of the proposed hunting program. A petition was received with 89 signatures (23 incomplete or illegible) stating "The following object to any recreational sport hunting at Rocky Flats National Wildlife Refuge." The petition did not address issues germane to the compatibility determination.

Letters supporting the hunting proposal were received from: the State of Colorado, Division of Wildlife, Colorado Wildlife Federation, National Wildlife Federation and the Wildlife Management Institute and other organizations and individuals. Letters opposing hunting were received from the Rocky Mountain Peace and Justice Center, Prairie Preservation Alliance and other organizations and individuals. Local units of government had mixed responses, with some supporting hunting, and others wanting no public use at all. Several local governments expressed concerns about the safety of the hunting proposal, and in response to those concerns, the proposal was changed to delete muzzleloading rifles and restrict hunting to archery and shotguns/slugs only. See Appendix H, Final CCP/EIS, for full comments and responses.

At public hearings, concerns were expressed that: the hunting program proposed was excessively expensive; the definition of "refuge" was a "place of safety"; ungulate populations should be controlled, if necessary, by agency sharpshooters; and that it would be inappropriate to protect animals all year, and then shoot at them two weekends per year – implying a "fair-chase" issue.

In the professional judgment of the undersigned, none of the issues raised at the hearings warrants changing the proposal. Hunting is clearly an appropriate use of NWRS – by law. The costs of the program are mostly salaries of personnel expended over the course of a fiscal year and are not excessive compared to many Refuge programs. Hunting can be an effective tool for ungulate population management that provides a wholesome outdoor recreation experience that is absent in culling programs. Many state-wide and Refuge deer herds are hunted a few days per year without fair chase concerns. The Rocky Flats herd is not fenced, and is currently subject to some hunting pressure on adjacent private, and nearby public lands.

Compatibility Determination: Using sound professional judgment (603 FW 2.6U and 2.11A), place an "X" in appropriate space to indicate whether the use would or would not materially interfere with or detract from the NWRS Mission or the Purposes of Rocky Flats NWR.

- Use is Not Compatible
- Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility: The use (hunting) will not begin until a step-down hunting plan, ensuring biological integrity, and safety of the program, has been approved under provisions of 8RM5, and the Refuge has been formally opened to hunting through publication of a rule in the Federal Register and inclusion of Rocky Flats among refuges open to big game hunting in 50 CFR 32.7.

Justification: Hunting is a form of wildlife-dependent recreation and is a priority use of the NWRS. Hunting will help control ungulate populations and distribution on the Refuge, with a net benefit to the conservation of rare botanical communities and conservation of habitat for the threatened Preble's meadow jumping mouse. Hunting will provide scientific data for surveillance of Refuge deer and elk populations for Chronic Wasting Disease.

Mandatory Re-evaluation Date: As a priority public use, the Compatibility Determination for this use is subject to mandatory re-evaluation in 15 years, on the anniversary of final Compatibility Determination in 2019.

NEPA Compliance: This use is addressed in an Environmental Impact Statement and Record of Decision.

Approval/Concurrence:

Prepared/Approved:

Refuge Manager:

Signature *W. Alan Zervoli* Date *9/18/04*

Concurrence:

Regional Chief:

Signature *Richard A. Coleman* Date *9/15/04*

References:

Colorado Division of Wildlife. 2002. Boulder Deer Herd Management Plan. Denver, CO.

Department of Energy. 1997. Rocky Flats Cumulative Impacts Document. Rocky Flats Field Office, Rocky Flats Environmental Technology Site. Golden, CO.

COMPATIBILITY DETERMINATION

Use:	Interpretation and Environmental Education
Refuge Name:	Rocky Flats National Wildlife Refuge Jefferson and Boulder Counties, Colorado
Establishing Authority:	Rocky Flats National Wildlife Refuge Act of 2001 (P.L. 107-107)
Refuge Purposes:	<ol style="list-style-type: none"> 1. Restoring and preserving native ecosystems. 2. Providing habitat for, and population management of, native plants, and migratory and resident wildlife. 3. Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)). 4. Providing opportunities for compatible scientific research.

NWRS Mission: "... to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats, of the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2)).

Description of Use:

Interpretation: This is a priority public use of the National Wildlife Refuge System per the National Wildlife Refuge System Improvement Act of 1997. It is proposed to continue delivery of Interpretation programs to accomplish the goals and objectives of the Refuge as established in the CCP.

Interpretation programs and facilities are proposed along designated trails and at the Visitor Contact Station on the west side of the Refuge. Facilities and programs would be mostly passive, consisting of interpretive panels on kiosks at trailhead access points and overlooks along trails. Signage would interpret the native prairie ecosystem, rare plant communities, wetlands, endangered species, invasive weeds, and the social significance and cultural resources of Rocky Flats NWR.

Guided tours, led by Service personnel or volunteers, provide a similar but more detailed experience than the self-guided Refuge visit. Tours and nature programs will be developed for delivery to the public on a scheduled basis, and by reservation for groups with special interests and needs. Tours will generally be conducted on the established trail system, but when guided by staff, may access all upland portions of the Refuge, depending on visitor interests, and the subject matter of the interpretive program.

A variety of interpretive programs may also be delivered off-site.

Environmental Education: Environmental education at Rocky Flats NWR will emphasize teacher-led programs and be targeted to high school and college level students. No formal outdoor classroom facilities are planned, but the Refuge will provide sites for student field trips on an "as-arranged" basis. Temporary and impromptu outdoor classrooms will not be established or used in wetland, riparian and other sensitive communities during the growing season, and will be scheduled seasonally to avoid impacts to threatened and endangered species. Rocky Flats NWR will become a venue for implementation of environmental education curricula developed at Rocky Mountain Arsenal NWR

Availability of Resources: It is anticipated that initial development of interpretive facilities designated in the Comprehensive Conservation Plan for Rocky Flats NWR will cost approximately \$76,000. It is also

anticipated that appropriated NWRS Operations and Maintenance funds for development of interpretive facilities will be leveraged through partnership arrangements with non-profit organizations and with local units of government and state agencies. Once developed, the annual maintenance costs for interpretive facilities is anticipated to be approximately \$5,000 per year.

No development of specialized facilities is anticipated to facilitate teacher-led environmental education programs at Rocky Flats NWR. It is estimated that development of special curricula and lesson plans for Rocky Flats will require approximately 0.5 FTE of labor and \$30,000 over the course of the first five years following Refuge establishment. The required level of staffing and funding to produce those materials is within the current operating budget and staffing pattern of the Rocky Mountain Arsenal NWR Complex.

This is a “pre-acquisition” compatibility determination, prepared to accompany the Comprehensive Conservation Plan (CCP) for the future Rocky Flats NWR. Funds are anticipated to be available for the operation of this program based on the Refuge staffing levels and budget proposed in the CCP.

Anticipated Impacts: Development and implementation of interpretive and education programs at Rocky Flats NWR will have minimal and biologically insignificant impacts on Refuge resources. Less than 0.25 acres of habitat will need to be disturbed or converted for development of all planned interpretive facilities (not including parking facilities).

Human presence and movement on the Refuge for participation in Interpretive and Environmental Education programs will result in some wildlife disturbance. The level of disturbance will be minimal and will not be additive to disturbances attributed to other public uses such as wildlife observation and trail use.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

Many public comments were received at four public hearings held in March 2004, and throughout the public comment period on the Draft CCP/EIS. Comments related to public use were received both from those in opposition and in favor of public access for interpretation and environmental education.

Many people were opposed to any form of public use at Rocky Flats NWR based on their belief that site cleanup is inadequate and that public access would result in health and safety risks to visitors. Those comments did not address whether wildlife observation and photography were compatible with Refuge purposes or the mission of NWRS.

Comments were received from several organizations, including the Colorado Wildlife Federation that supported the proposed action (Alternative B), including interpretation and environmental education. The Rocky Flats Citizen’s Advisory Board supported environmental education, but was not in agreement about whether those activities should take place on-site. The Rocky Flats Cold War Museum expressed a desire to partner with the Service in development of interpretive and education programs. Other groups, including the Prairie Preservation Alliance recommended no wildlife-dependent recreation, based on concerns of wildlife disturbance, exacerbating invasive weed problems and causing erosion.

Comments from local units of government also varied, with several cities and counties favoring public access for interpretation and environmental education, and others recommending no public use of the Refuge. Similarly, written comments received from individuals ran the gamut from advocating more extensive public use programs, to the 815 copies of a form letter expressing opposition to any recreational access to the Rocky Flats NWR. For the complete record of public comment received on this issue, including responses to written comments and testimony received at the public hearings, please see Appendix H to the Final Comprehensive Conservation Plan and Environmental Impact Statement for Rocky Flats NWR.

Several of the comments received were germane to the issue of compatibility. Those comments raised concerns mostly related to wildlife disturbance. There were also several general comments opposing public use on the basis that a “refuge” should be free of disturbance and a place of inviolate sanctuary for wildlife.

The undersigned acknowledge that this use is likely to result in some disturbance of wildlife. However, in the professional judgment of the undersigned, we do not believe that the level of disturbance that may result from this use will materially detract from or prevent the achievement of the Refuge establishment purposes or mission of the NWRS. Wildlife interpretation and environmental education are clearly appropriate uses of the NWRS, and are among the priority public uses of the Refuge System, as established in law. The areas necessary to be disturbed for development of the proposed facilities to support interpretation and environmental education are very small. The conversion of those small areas to non-habitat uses will not materially detract from the ability of the Refuge to achieve its establishment purposes or its contribution to accomplishing the NWRS mission.

Compatibility Determination: Using sound professional judgment (603 FW 2.6U and 2.11A), place an “X” in appropriate space to indicate whether the use would or would not materially interfere with or detract from the NWRS Mission or the Purposes of Rocky Flats NWR.

- Use is Not Compatible
 X Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Development and implementation of Interpretation and Environmental Education programs in the first five years following Refuge establishment will be limited to one short trail from the Visitor Contact Station on the west side of the Refuge to the Lindsay Ranch site, and one guided interpretive tour per month that will follow existing Department of Energy service roads.
2. A self-study training program will be prepared for use by educators. Teachers will be required to participate in that training, or in Service-sponsored teacher workshops prior to leading teacher-lead environmental education programs on the Refuge. The training will include information on site history, safety, residual contamination, closed areas, endangered species and wetland conservation, and preservation of rare habitats.

Justification: Interpretation and environmental education are forms of wildlife-dependent recreation and are priority public uses of the NWRS. Interpretation and Environmental Education will increase public awareness and appreciation of the significant wildlife and habitat values of Rocky Flats NWR, and the National Wildlife Refuge System. It is anticipated that such appreciation and understanding will foster increased public support for the Refuge System and conservation of America’s wildlife resources.

Mandatory Re-evaluation Date: As a priority public use, the Compatibility Determination for this use is subject to mandatory re-evaluation in 15 years, on the anniversary of final Compatibility Determination in 2019.

NEPA Compliance: This use is addressed in an Environmental Impact Statement and Record of Decision.

Approval/Concurrence:

Prepared/Approved:

Refuge Manager:

Signature



Date 9/18/04

Concurrence:

Regional Chief:

Signature



Date

9/15/04

COMPATIBILITY DETERMINATION

- Use:** Multi-Use (Equestrian, Bicycle and Foot access) Trails
- Refuge Name:** Rocky Flats National Wildlife Refuge
Jefferson and Boulder Counties, Colorado
- Establishing Authority:** Rocky Flats National Wildlife Refuge Act of 2001 (P.L. 107-107)
- Refuge Purposes:**
1. Restoring and preserving native ecosystems.
 2. Providing habitat for, and population management of, native plants, and migratory and resident wildlife.
 3. Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)).
 4. Providing opportunities for compatible scientific research.

NWRS Mission: "... to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats, of the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2)).

Description of Use: To provide access for compatible wildlife-dependent recreational activities of wildlife observation, wildlife photography and interpretation, a 16-mile system of trails will be developed at Rocky Flats NWR.

In order to provide connectivity with regional trail systems and complement public uses of adjacent public lands (municipal and county open space), some portions of the Rocky Flats National Wildlife Refuge (NWR) trail system will accommodate horseback riding and bicycles as modes of transportation for wildlife-dependent recreation.

Within the total anticipated trail system of 16.5 miles, approximately 3.8 miles of trail will be open to foot traffic only, and portions of those foot trails will be closed seasonally to reduce disturbance of wetland/riparian habitats during the months of May through September when the threatened Preble's meadow jumping mouse is active above ground.

In the northern portion of the Refuge, a multi-use trail approximately 4 miles long will follow the top of the mesa on the southern boundary of the Rock Creek drainage. This trail will connect a parking lot on State Highway 128, with open space parks managed by the City of Boulder, Boulder County, City and County of Broomfield, and Town of Superior with the proposed Visitor Contact Station on the west side of the Refuge and ultimately with regional trails to be located off-Refuge in the State Highway 93 corridor west of the Refuge. This trail will be open for foot and bicycle traffic only.

In the southern portion of the Refuge, a multi-use trail, approximately 8 miles long will follow portions of the Refuge south boundary, and mesa tops south of the main stem of Woman Creek, connecting City of Westminster and City of Arvada Open Space with the Visitor Contact Station and eventually with other public lands and regional trails west of Rocky Flats. This southern multi-use trail will be open for equestrian, bicycle and foot traffic.

Most (72%) of the multi-use trails will follow existing gravel and dirt roads constructed prior to Refuge establishment. None of the multi-use trails will traverse sensitive riparian habitats, except for the use of one existing crossing of Woman Creek at the west boundary of the Refuge.

Multi-use trails connecting the Refuge with adjacent public lands are not anticipated to be open for public use for the first five years following Refuge establishment. Initial Refuge management will focus on reclaiming and restoring grassland and riparian habitats on existing roads and trails that will not be retained for management or public use purposes.

Availability of Resources: It is anticipated that initial development of the multi-use trail system will cost about \$145,723 including revegetation to reduce width of existing roads, signage, and in some places, augmentation of existing road surface materials with appropriate aggregate products. Annual maintenance of these trails, once established, is estimated to cost about \$8,000 per year. It is anticipated that appropriated funds for trail development and maintenance will be leveraged with volunteer labor and funds developed through partnerships with user groups, local governments and state agencies.

This is a pre-acquisition compatibility determination, prepared to accompany the Comprehensive Conservation Plan (CCP) for the future Rocky Flats NWR. Funds are anticipated to be available for the operation of this program based on the Refuge staffing levels and budget proposed in the CCP.

Anticipated Impacts: With an average estimated width of 8 feet, multi-use trails accommodating bicycle and/or equestrian traffic will occupy approximately 12 acres or 0.2% of the land area of the Rocky Flats site. However, because all but 12% of the multi-use trails will be located on existing DOE service roads, no loss of habitat will result from establishment of these trails.

Trails also channel visitor access to and through the Refuge. An authorized system of foot-only and multi-use trails provides access that is highly desired by the public for wildlife-dependent recreation, and makes priority public uses accessible to people with limited mobility. Well-maintained and posted trails reduce demands for general access to sensitive habitat areas. The use of unobtrusive barriers, such as post and cable fencing and signage reminds visitors to remain on trails and reduces trespass into sensitive areas.

Trails are the sole means of providing compatible wildlife observation and photography programs at Rocky Flats NWR. Without trails, the Refuge would need to be closed for those priority public uses to ensure an adequate level of protection to sensitive habitats and federally listed threatened and endangered species.

Trail use will result in some wildlife disturbance, and the level of disturbance resulting from various modes of transportation (horse, bicycle, foot) will vary depending on the species present and season. Many species of wildlife exhibit less of a reaction to the presence of moving bicycles than they do to humans on foot. Many species are also more tolerant of equestrians than pedestrians. Because of the relatively small percentage of Refuge habitats that are located near trails, the ability of some species to become acclimated to trail use, and the location of planned multi-use trails outside of sensitive habitats, disturbance resulting from trail use is anticipated to be biologically insignificant. It is acknowledged that some species do not acclimate to regular human presence in their habitat and that wildlife-dependent recreation on a multi-use trail system will result in reduced use of some habitat areas by some species.

Horse manure can be a source of weed seeds along equestrian trails. Weed seeds can also be introduced and spread by bicycle and motor vehicle tires and on boots and shoes. Rocky Flats NWR does have significant invasive weed problems, particularly with diffuse knapweed and Dalmatian toadflax. It is believed that the principal source of these weeds are disturbed gravel mining areas and other developmental activities on neighboring lands. Horse manure on trails may also present a “mess” issue with some trail users.

Multi-use trails present some safety issues not associated with “foot-only” trails. Horses may be spooked by pedestrians and bicycles and cyclists traveling at higher speeds may present a hazard to pedestrians.

The greatest anticipated impact associated with multi-use trails is the potential for erosion and damage to trail surfaces caused by horses and bicycles. Permitting those modes of transportation is likely to increase maintenance costs and if not managed, could eventually lead to soil loss and reduced surface water quality.

It is noted that equestrian use is authorized in most units of the National Wilderness System, and is deemed appropriate with preservation of wilderness values, and that bicycle use on trails has proven to be a compatible mode of transportation on other urban units of the NWRS, including Minnesota Valley NWR and refuges of the San Diego NWR Complex.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

Many public comments were received at four public hearings held in March 2004, and throughout the public comment period on the Draft CCP/EIS. Comments related to trails were received both from those in opposition and in favor of multi-use trails.

Many people were opposed to any form of public use at Rocky Flats NWR based on their belief that site cleanup is inadequate and that public access would result in health and safety risks to visitors. Those comments did not address whether trails were compatible with Refuge purposes or the mission of NWRS.

Comments were also received from several organizations, including the Boulder Area Trails Coalition and Boulder County Horse Association, which supported multi-use trails and other groups, including Plan Jeffco and the Prairie Preservation Alliance, which recommended very limited trails or no trails at all due to concerns about trail users causing wildlife disturbance, exacerbating invasive weed problems and causing erosion. The National Wildlife Federation and others specifically opposed equestrian access based on the weed issue. Comments from local units of government also varied, with several cities and counties favoring establishment of multi-use trails and others recommending no public use of the Refuge.

Similarly, written comments received from individuals ran the gamut from advocating more extensive trails with greater access for equestrians to 815 copies of a form letter expressing opposition to any recreational access to the Rocky Flats NWR. For the complete record of public comment received on this issue, including responses to written comments and testimony received at the public hearings, please see Appendix H to the Final Comprehensive Conservation Plan and Environmental Impact Statement for Rocky Flats NWR.

Several of the comments received were germane to the issue of compatibility. Those comments raised concerns mostly related to wildlife disturbance, habitat fragmentation, weed seed importation and erosion that might result from trail use. There were also several general comments opposing public use on the basis that a "refuge" should be free of disturbance and a place of inviolate sanctuary for wildlife.

The undersigned acknowledge that this use is likely to result in some disturbance of wildlife, and that active management of this use will be required to mitigate potential for this use to exacerbate weed problems and cause erosion. However, in the professional judgment of the undersigned, we do not believe that the level of disturbance that may result from this use will materially detract from or prevent the achievement of the Refuge establishment purposes or mission of the NWRS. Trails will occupy a very small portion of Rocky Flats NWR. Implementation of the Final CCP will result in less habitat fragmentation, fewer roads and point sources of soil erosion, and enhanced weed control efforts. If implemented with the stipulations listed below, this use will facilitate achievement of Refuge goals for wildlife-dependent recreation, and will not significantly interfere with preservation and restoration of native habitats, or conservation of native wildlife.

Compatibility Determination: Using sound professional judgment (603 FW 2.6U and 2.11A), place an "X" in appropriate space to indicate whether the use would or would not materially interfere with or detract from the NWRS Mission or the Purposes of Rocky Flats NWR.

- Use is Not Compatible
- Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Multi-use trails with equestrian and bicycle access are limited to those trail segments designated in the Comprehensive Conservation Plan for Rocky Flats NWR. Development or opening of additional areas for these uses will require additional evaluation under the National Environmental Policy Act, a new Compatibility Determination, and a new Intra-Service Section 7 Consultation.
2. No dogs or other pets will be allowed on any trails or other areas of Rocky Flats NWR.
3. Equestrian use is contingent on development and implementation of volunteer service agreements with equestrian user groups who will agree to pick up and remove horse manure from Refuge trails at least twice a month to reduce the potential for horses to become a source of weed seed.
4. Trails will be posted with “yield” signs indicating that pedestrians must yield to equestrian users and bicycles must yield to both equestrians and pedestrians.
5. Trails open to bicycle use will be located on level ground to the maximum extent possible to discourage use by recreational mountain bikers for “thrill riding.”

Justification: Multi-use trails accommodating equestrian and bicycle use are not a form of wildlife dependent recreation. However, they are modes of access and transportation that facilitate public participation in wildlife observation, wildlife photography and interpretation. Within the context of an urban NWR, surrounded on three sides by public lands administered by local units of government, these trails provide needed connectivity among public lands to facilitate the public’s appreciation of open space and habitat conservation at the edge of a rapidly urbanizing metropolitan area.

It is noted that equestrian use is authorized in almost all units of the National Wilderness System, and is deemed appropriate with preservation of wilderness values. Bicycle use on trails has proven to be a compatible mode of transportation on other urban units of the NWRS, including Minnesota Valley NWR and refuges of the San Diego NWR Complex that support far more sensitive habitats and far more significant migratory bird and endangered species resources than does Rocky Flats.

Mandatory Re-evaluation Date: This is not a priority public use. The Compatibility Determination for this use is subject to mandatory re-evaluation in 10 years, on the anniversary of final Compatibility Determination in 2014.

NEPA Compliance: This use is addressed in an Environmental Impact Statement and Record of Decision.

Approval/Concurrence:

Prepared/Approved:
 Refuge Manager:
 Signature *W. Alan Zornelli* Date *9/18/04*

Concurrence:
 Regional Chief:
 Signature *Richard A. Coleman* Date *9/15/04*

COMPATIBILITY DETERMINATION

- Use:** Wildlife Observation and Photography, Including Public Use Facility Development to support those uses.
- Refuge Name:** Rocky Flats National Wildlife Refuge
Jefferson and Boulder Counties, Colorado
- Establishing Authority:** Rocky Flats National Wildlife Refuge Act of 2001 (P.L. 107-107)
- Refuge Purposes:**
1. Restoring and preserving native ecosystems.
 2. Providing habitat for, and population management of, native plants, and migratory and resident wildlife.
 3. Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)).
 4. Providing opportunities for compatible scientific research.

NWRS Mission: "...to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats, of the United States for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2)).

Description of Use: Wildlife Observation and Wildlife Photography programs are provided to the general public, during daylight hours, along an established and well delineated system of authorized trails designated in the Comprehensive Conservation Plan for Rocky Flats National Wildlife Refuge. A total of 16.5 miles of trail will be developed and open. Most of the trail system will be open year-round, however trails that enter the Rock Creek drainage and cross sensitive habitats of the Preble's meadow jumping mouse will be closed seasonally during May through September.

Off-trail access for wildlife observation and photography will also be provided seasonally, on the southern third of the Refuge, during the Preble's hibernation season from September through May, outside the bird-nesting season.

Most areas of the Refuge are closed to general public access due to the sensitivity of habitats. Despite highly restricted access that prohibits visitor traffic in the Refuge's sensitive endangered species habitats, excellent opportunities are available for observing deer, coyotes, raptors, song birds other species from the approved trail system. Opportunities for wildlife observation and photography may also be available in conjunction with staff or volunteer-led interpretive tours and programs.

The CCP calls for access to public use trails for wildlife observation and photography. The CCP also calls for enhanced programs including the addition of one wildlife observation and photography blind, and three enhanced overlook facilities for observation and photography, a Visitor Contact Station, and trailhead parking areas. The Visitor Contact Station would be a small (700 - 1000 square foot) building with associated restroom facilities. Parking facilities would include three lots, to accommodate a total of 70 cars and 1 bus. Parking lots would be gravel surfaced, and enclosed with post and beam type fencing. Over 72% of the planned trail system will be located on existing roads. About 2 miles of new foot trail will be constructed in the northwest corner of the Refuge. Approximately 0.6 miles of existing roads would have to be improved to provide for accessibility for mobility impaired visitors.

Availability of Resources: Most of the planned trail system will be located on existing roads, so wildlife observation and photography could be initiated without additional facility development, and with minimum costs for posting and staffing.

Construction of two new trail segments (4.6 miles), overlook facilities, viewing/ photography blinds, trailhead parking lots and Visitor Contact Station represent one-time construction costs of about \$390,000.

Resources necessary to open and operate wildlife observation and photography programs, using the existing trail system are estimated to be 0.5 FTE and \$42,000 annually. Those resources are available within the existing staffing and budget allocations of the Rocky Mountain Arsenal NWR Complex. They will be well within the resources available under the proposed staffing and O&M budget proposed in the CCP for Rocky Flats NWR.

Resources are not currently available for development of new facilities to support the objective level of wildlife observation and photography programs for Rocky Flats NWR. Once approved, all facilities called for in the CCP will be incorporated in funding packages in the Refuge Operating Needs System (RONS), and will be developed as funds become available over the life of the CCP. Development of additional facilities are not required to open the Refuge for limited wildlife observation and photography.

Anticipated Impacts: Continuation of the existing programs for interpretation, wildlife observation and wildlife photography will have a negligible impact on habitats. Development of facilities to support these uses will result in a loss of 1.9 acres of xeric tallgrass prairie and 2.9 acres of mixed grass prairie, mostly for parking lot development. Those acreages represent 0.12% and 0.13% of those habitat types at Rocky Flats, respectively. Facility development would result in no loss of upland shrub, riparian, or other wetland habitats.

Some wildlife disturbance will result from these programs. Some birds will be flushed from foraging or resting habitats by the approach of people on trails. However, the area impacted by these disturbances is small compared to the overall habitat area available. Approximately 200 acres of habitat will be within 100 feet on either side of the proposed trail system. That amounts to 4% of the total acreage at Rocky Flats. It is also possible that some particularly sensitive bird species will avoid areas adjacent to trails for nesting purposes. However, under the CCP approved trail plan, over 80% of Refuge habitats will be greater than 100 yards from any trail.

Off-trail access during the period of October – April in the southern portion of the Refuge is provided to give bird watchers and photographers an opportunity for viewing and photographing wildlife that may not be available on designated trails. This area avoids occupied Preble's habitat and the use will occur during seasons when there will be no impact to ground-nesting birds. Some trampling of vegetation will occur, but most plants will be senescent during those seasons. It is not anticipated that off-trail traffic will be intense enough to create social trails or damage habitat.

Disturbance caused by these uses is not anticipated to cause wildlife to leave or abandon the Refuge, and all areas are available to wildlife for undisturbed use during closed hours. Disturbance resulting from wildlife observation, and photography programs is deemed to be biologically insignificant.

Additionally, the CCP calls for continued closure and restoration of many roads and trails that will exist at the time of Refuge establishment. Fencing, other barriers, signs and revegetation efforts will restore many acres and result in a net habitat gain. All stream crossings will be on existing roads, and no new disturbance of riparian habitats will be required for these uses. Numerous existing stream crossings will be restored and revegetated. Trails that occur in riparian areas in the Rock Creek drainage will be closed seasonally to prevent wildlife observation and photography activities from impacting Preble's during the May through September active period.

The proposed uses, including development of facilities to support those uses, will foster public appreciation and understanding of the prairie ecosystem and the importance of Refuge habitats for wildlife conservation.

The proposed uses are also priority wildlife-dependent uses of the National Wildlife Refuge System and promote fulfillment of the intent of the National Wildlife Refuge System Improvement Act of 1997.

Public Review and Comment: This Compatibility Determination was presented for public review and comment in conjunction with the public comment period for the Draft CCP/EIS for the future Rocky Flats NWR in the first quarter of CY 04.

Many public comments were received at four public hearings held in March 2004, and throughout the public comment period on the Draft CCP/EIS. Comments related to public use were received both from those in opposition, and in favor of public access for wildlife observation and photography.

Many people were opposed to any form of public use at Rocky Flats NWR based on their belief that site cleanup is inadequate and that public access would result in health and safety risks to visitors. Those comments did not address whether wildlife observation and photography were compatible with Refuge purposes or the mission of NWRS.

Comments were received from several organizations that supported the proposed action (Alternative B), including wildlife observation and photography. Other groups, including the Prairie Preservation Alliance recommended no trails or wildlife-dependent recreation based on concerns of wildlife disturbance, exacerbating invasive weed problems and causing erosion.

Comments from local units of government also varied, with several cities and counties favoring public access for wildlife observation and photography, and others recommending no public use of the Refuge. Similarly, written comments received from individuals ran the gamut from advocating more extensive public use programs, to the 815 copies of a form letter expressing opposition to any recreational access to the Rocky Flats NWR. For the complete record of public comment received on this issue, including responses to written comments and testimony received at the public hearings, please see Appendix H to the Final Comprehensive Conservation Plan and Environmental Impact Statement for Rocky Flats NWR.

Several of the comments received were germane to the issue of compatibility. Those comments raised concerns mostly related to wildlife disturbance. There were also several general comments opposing public use on the basis that a "refuge" should be free of disturbance and a place of inviolate sanctuary for wildlife.

The undersigned acknowledge that this use is likely to result in some disturbance of wildlife. However, in the professional judgment of the undersigned, we do not believe that the level of disturbance that may result from this use will materially detract from or prevent the achievement of the Refuge establishment purposes or mission of the NWRS. Wildlife observation and photography are clearly appropriate uses of the NWRS, and are among the priority public uses of the Refuge System, as established in law. The areas necessary to be disturbed for development of the proposed facilities to support wildlife observation and photography are very small. The conversion of those small areas to non-habitat uses will not materially detract from the ability of the Refuge to achieve its establishment purposes or its contribution to accomplishing the NWRS mission.

Compatibility Determination: Using sound professional judgment (603 FW 2.6U., and 2.11A), place an "X" in appropriate space to indicate whether the use would or would not materially interfere with or detract from the NWRS Mission or the Purposes of Rocky Flats NWR.

- Use is Not Compatible
- Use is Compatible with the Following Stipulations

Stipulations Necessary to Ensure Compatibility:

1. Wildlife observation and photography programs must be conducted in accordance with the Comprehensive Conservation Plan. Any new programs or facilities not prescribed in the CCP must be approved through an additional public planning process, in compliance with NEPA, Section 7 of the Endangered Species Act, and other environmental compliance requirements, prior to implementation.

2. Areas open for off-trail use in the southern third of the Refuge will be closely monitored by Refuge staff. If off-trail use exceeds the capacity of the habitat (e.g., to a point where trampling results in loss of vegetative cover), the off-trail portion of the program will be curtailed or reduced to preserve habitat integrity.

Justification: Wildlife observation, and wildlife photography are priority wildlife-dependent public uses of the National Wildlife Refuge System. These uses, including existing and future enhanced programs as prescribed in the Comprehensive Conservation Plan for Rocky Flats NWR are compatible with the Refuge’s establishment purposes, and with the mission of the National Wildlife Refuge System. These uses are not only justified but are encouraged by the National Wildlife Refuge Improvement Act of 1997. The Rocky Flats NWR Act of 2001 states that wildlife-dependent recreation is a priority public use of Rocky Flats NWR.

Mandatory Re-evaluation Date: As a priority public use, the Compatibility Determination for this use is subject to mandatory re-evaluation in 15 years, on the anniversary of final Compatibility Determination in 2019.

NEPA Compliance: This use is addressed in an Environmental Impact Statement and Record of Decision.

Approval/Concurrence:

Prepared/Approved:

Refuge Manager:

Signature

Date



9/18/04

Concurrence:

Regional Chief:

Signature

Date



9/15/04

appendix c

Laws and Executive Orders

LAWS AND REGULATIONS AFFECTING ROCKY FLATS NWR

Many procedural and substantive requirements of Federal and applicable State and local laws and regulations affect Refuge establishment, management, and development. The following list identifies the key federal laws and policies that were considered during the planning process or that could affect future Refuge management.

AMERICAN INDIAN RELIGIOUS FREEDOM ACT (1978): Directs agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve Native American religious cultural rights and practices.

AMERICANS WITH DISABILITIES ACT (1992): Prohibits discrimination in public accommodations and services.

ANTIQUITIES ACT (1906): Authorizes the scientific investigation of antiquities on Federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.

ARCHAEOLOGICAL AND HISTORIC PRESERVATION ACT (1974): Directs the preservation of historic and archaeological data in Federal construction projects.

ARCHAEOLOGICAL RESOURCES PROTECTION ACT (1979) AS AMENDED: Protects materials of archaeological interest from unauthorized removal or destruction and requires Federal managers to develop plans and schedules to locate archaeological resources.

ARCHITECTURAL BARRIERS ACT (1968): Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

BALD AND GOLDEN EAGLE PROTECTION ACT (1940): The Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions.

CLEAN AIR ACT OF 1977, AS AMENDED: The primary objective of this Act is to establish Federal standards for various pollutants from both stationary and mobile sources and

to provide for the regulation of polluting emissions via state implementation plants. In addition, and of special interest for National Wildlife Refuges, some amendments are designed to prevent significant deterioration in

certain areas where air quality exceeds national standards, and to provide for improved air quality in areas which do not meet Federal standards ("non-attainment"

areas). Federal facilities are required to comply with air quality standards to the same extent as nongovernmental entities (42 U.S.C. 7418).

CLEAN WATER ACT (1977): Requires consultation with the Corps of Engineers (404 permits) for major wetland modifications.

EMERGENCY WETLANDS RESOURCES ACT (1986): The purpose of the Act is "To promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes."

ENDANGERED SPECIES ACT (1973): Requires all Federal agencies to carry out programs for the conservation of endangered and threatened species.

EXECUTIVE ORDER NO. 11593, PROTECTION AND ENHANCEMENT OF THE CULTURAL ENVIRONMENT (1971): If the Service proposes any development activities that would affect the archaeological or historical sites, the Service will consult with Federal and State Historic Preservation Officers to comply with Section 106 of the National Historic Preservation Act of 1966, as amended.

EXECUTIVE ORDER 11987, EXOTIC ORGANISMS (1977): This Executive Order requires Federal agencies, to the extent permitted by law, to: restrict the introduction of exotic species into the natural ecosystems on lands and waters owned or leased by the United States; encourage States, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the U.S.; restrict the importation and introduction of exotic species into any natural U.S. ecosystems as a result of activities they undertake, fund, or authorize; and restrict the use of Federal funds, programs, or authorities to export native species for introduction into ecosystems outside the U.S. where they do not occur naturally.

EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT (1977): Each Federal agency shall provide leadership and take action to reduce the risk of flood loss and minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the floodplains.

EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS (1977): This order directs all Federal agencies to avoid, if possible, adverse impacts to wetlands and to preserve and enhance the natural and beneficial values of wetlands. Each agency shall avoid undertaking or assisting in wetland construction projects unless the head of the agency determines that there is no practicable alternative to such construction and that the proposed action includes

measures to minimize harm. Also, agencies shall provide opportunity for early public review of proposals for construction in wetlands, including those projects not requiring an EIS.

EXECUTIVE ORDER 12898, ENVIRONMENTAL JUSTICE (1994): This order provides minority and low-income populations an opportunity to comment on the development and design of Reclamation activities. Federal agencies shall make achieving environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

EXECUTIVE ORDER 12996 MANAGEMENT AND GENERAL PUBLIC USE OF THE NATIONAL WILDLIFE REFUGE SYSTEM (1996): Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents four principles to guide management of the System.

EXECUTIVE ORDER 13007 INDIAN SACRED SITES (1996): Directs Federal land management agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely affecting the physical integrity of such sacred sites, and where appropriate, maintain the confidentiality of sacred sites.

EXECUTIVE ORDER 13084, CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS (1998): The United States has a unique legal relationship with Indian tribal governments as set forth in the Constitution of the United States, treaties, statutes, Executive orders, and court decisions. Since the formation of the Union, the United States has recognized Indian tribes as domestic dependent nations under its protection. In treaties, our Nation has guaranteed the right of Indian tribes to self-government. As domestic dependent nations, Indian tribes exercise inherent sovereign powers over their members and territory. The United States continues to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, trust resources, and Indian tribal treaty and other rights.

EXECUTIVE ORDER 13112, INVASIVE SPECIES(1999): Directs federal agencies to prevent the introduction of invasive species, control and monitor invasive species, and restore native species and habitats that have been invaded.

FEDERAL AID IN WILDLIFE RESTORATION ACT OF SEPTEMBER 2, 1937 (16 U.S.C.669-669I), AS AMENDED: This Act, commonly referred to as the "Pittman-Robertson Act", provides to States for game and non-game wildlife restoration work.

Funds from an excise tax on sporting arms and ammunition are appropriated to the Secretary of the Interior annually and apportioned to States on a formula basis for approved land acquisition, research, development and management projects and hunter safety programs.

FEDERAL NOXIOUS WEED ACT (1990): Requires the use of integrated management systems to control or contain undesirable plant species; and an interdisciplinary approach with the cooperation of other Federal and State agencies.

FISH AND WILDLIFE COORDINATION ACT OF MARCH 10, 1934 (16 U.S.C. 661-66c), AS AMENDED: This Act authorizes the Secretary of the Interior to assist Federal, State and other agencies in development, protection, rearing and stocking fish and wildlife on Federal lands, and to study effects of pollution on fish and wildlife. The Act also requires consultation with the Fish and Wildlife Service and the wildlife agency of any State wherein the waters of any stream or other water body are proposed to be impounded, diverted, channelized or otherwise controlled or modified by any Federal agency, or any private agency under Federal permit or license, with a view to preventing loss of, or damage to, wildlife resources in connection with such water resource projects. The Act further authorizes Federal water resource agencies to acquire lands or interests in connection with water use projects specifically for mitigation and enhancement of fish and wildlife.

FISH AND WILDLIFE ACT (1956): Established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges.

FISH AND WILDLIFE COORDINATION ACT (1958): Allows the Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

FOOD SECURITY ACT OF 1985 (TITLE XII, PUBLIC LAW 99-198, 99 STAT. 1354; DECEMBER 23, 1985), AS AMENDED: Authorizes acquisition of easements in real property for a term of not less than 50 years for conservation, recreation, and wildlife purposes.

LAND AND WATER CONSERVATION FUND ACT (1965): Uses the receipts from the sale of surplus Federal land, outer continental shelf oil and gas sales, and other sources for land acquisition under several authorities.

MIGRATORY BIRD CONSERVATION ACT (1929): Establishes procedures for acquisition by purchase, rental, or gift of areas approved by the Migratory Bird Conservation Commission.

MIGRATORY BIRD TREATY ACT (1918): Designates the protection of migratory birds as a Federal responsibility. This Act enables the setting of seasons, and other regulations including the closing of areas, Federal or nonfederal, to the hunting of migratory birds.

NATIONAL ENVIRONMENTAL POLICY ACT (1969): Requires all Federal agencies to examine the impacts upon the environment that their actions might have, to incorporate the best available environmental information, and the use of public participation in the planning and implementation of all actions. All Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documentation to facilitate sound environmental decision making. NEPA requires the disclosure of the environmental impacts of any major Federal action that affects in a significant way the quality of the human environment.

NATIONAL HISTORIC PRESERVATION ACT (1966) AS AMENDED: Establishes as policy that the Federal Government is to provide leadership in the preservation of the nation's prehistoric and historic resources.

NATIONAL WILDLIFE REFUGE SYSTEM ADMINISTRATION ACT OF 1966 AS AMENDED BY THE NATIONAL WILDLIFE REFUGE SYSTEM IMPROVEMENT ACT OF 1997, 16 U.S.C. 668DD-668EE. (REFUGE ADMINISTRATION ACT): Defines the National Wildlife Refuge System and authorizes the Secretary to permit any use of a refuge provided such use is compatible with the major purposes for which the refuge was established. The Refuge Improvement Act clearly defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation and photography, or environmental education and interpretation); establishes a formal process for determining compatibility; established the responsibilities of the Secretary of Interior for managing and protecting the System; and requires a Comprehensive Conservation Plan for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

NATIONAL WILDLIFE REFUGE SYSTEM IMPROVEMENT ACT OF 1997: Sets the mission and administrative policy for all refuges in the National Wildlife Refuge System. Clearly defines a unifying mission for the Refuge System; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation and photography, or environmental education and interpretation); establishes a formal process for determining compatibility; establishes the responsibilities

of the Secretary of the Interior for managing and protecting the System; and requires a Comprehensive Conservation Plan for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT (1990): Requires Federal agencies and museums to inventory, determine ownership of, and repatriate cultural items under their control or possession.

REFUGE RECREATION ACT (1962): Allows the use of refuges for recreation when such uses are compatible with the refuge's primary purposes and when sufficient funds are available to manage the uses.

REHABILITATION ACT (1973): Requires programmatic accessibility in addition to physical accessibility for all facilities and programs funded by the Federal government to ensure that anybody can participate in any program.

REFUGE REVENUE SHARING ACT OF 1935, AS AMENDED: Provides for payments to counties in lieu of taxes, using revenues derived from the sale of products from refuges. Public Law 88-523 (1964) revised this Act and required that all revenues received from refuge products, such as animals, timber and minerals, or from leases or other privileges, be deposited in a special Treasury account and net receipts distributed to counties for public schools and roads. Payments to counties were established as: 1) on acquired land, the greatest amount calculated on the basis of 75 cents per acre, three-fourths of one percent of the appraised value, or 25 percent of the net receipts produced from the land; and 2) on land withdrawn from the public domain, 25 percent of net receipts and basic payments under Public Law 94-565 (31 U.S.C. 1601- 1607, 90 Stat. 2662), payment in lieu of taxes on public lands.

ROCKY FLATS NATIONAL WILDLIFE REFUGE ACT OF 2001: Establishes Rocky Flats National Wildlife Refuge following cleanup and closure of the site, directs the development of a Comprehensive Conservation Plan for the Refuge, and other details.

appendix d

Regulatory Letters about Future
Refuge Management



**UNITED STATES ENVIRONMENTAL PROTECTION
AGENCY**

**REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466**

Ref: 8EPR-F

Mr. Mark Sattelberg
Senior Contaminant Biologist
US Fish and Wildlife Service
Rocky Mountain Arsenal National Wildlife Refuge
Building 111
Commerce City, CO 80222-1748

Re: USFWS Future Activities at Rocky Flats

Dear Mr. Sattelberg:

This is in response to your letter dated August 20, 2003, in which you asked whether EPA anticipated placing restrictions on activities the US Fish and Wildlife Service (Service) may wish to conduct at the future Rocky Flats National Wildlife Refuge. Specifically the Service asked about the following activities: prescribed fire, grazing, plowing, and ripping up old roads.

Once EPA certifies the remedy to be complete and jurisdiction of property has been transferred to the Service, does EPA foresee any restrictions on the use of prescribed fire? Similarly, does the EPA envision restrictions on ripping up roads?

As you are aware, the widespread contaminants of most concern at Rocky Flats are plutonium and americium. Consequently, areas at the site where these contaminants remain at closure would have the most use restrictions. In June 2003, CDPHE and EPA approved modifications to the Rocky Flats Cleanup Agreement, including revised contaminant soil action levels. EPA expects that at the completion of the remedy no significant contamination will be left in the surface soils at concentrations greater than outlined in the Attachment 5 of the modified agreement. For plutonium, the expectation is that surface soils contaminated at concentrations greater than 50 picocuries/gram (pCi/g) will have been removed. Surface soils are defined as those less than three feet in depth. EPA anticipates there will be restrictions on areas of the Site with residual contamination less than 50 pCi/g but greater than 9 pCi/g – a concentration representing lifetime excess cancer risk of one in 1,000,000 to a wildlife refuge worker. This is not to say that prescribed fire or ripping up roads would be precluded in areas with residual contamination in the 9-50 pCi/g range. Rather, the Service would need to take extra precautions in those areas to minimize soil disturbances. The primary concern being that major soil disturbances could result in elevated levels of contaminants to migrate to surface water.



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The use of prescribed fire at Rocky Flats is of special interest to citizens and public officials in the surrounding communities. EPA believes that the use of prescribed fire at the site will not pose significant risk to firefighters, Service personnel or the general public. This belief is based upon data gathered during and after the 2000 test burn and for accidental burns at the site, as well as risk assessment work documented in the Task 3 Report (Assessing Risks of Exposure to Plutonium, February 2000) on the effects of prescribed fire at Rocky Flats. However, relatively large areas of Rocky Flats have not been characterized to date. These areas are often referred to as "white spaces." EPA does not believe there is great potential to find contamination in these areas because they are removed from areas of known contamination and are not associated with past practices at the site that resulted in releases of contamination. Nevertheless, unexpected discoveries have occurred at Rocky Flats (e.g., the incinerator near the ash pits), and EPA believes that samples should be collected from white spaces before closure and analyzed prior to the application of prescribed fire in those areas.

Does EPA foresee any restrictions on the consumption of edible tissues from the grazing animals used for weed control at Rocky Flats?

Animal studies to date, and studies conducted by the actinide migration panel, indicate that there is no significant uptake of contaminants by grazing animals at Rocky Flats. Therefore, EPA does not anticipate restrictions on consumption of animals that graze at Rocky Flats. However, overgrazing in the areas in the 9 to 50 pCi/g range could result in water quality issues as discussed above. Therefore, EPA would expect to see measures put in place that would prevent overgrazing.

Do you foresee any restrictions on the plowing of areas in the southeast portion of the site for the purpose of reestablishing native vegetation?

Plowing will in all likelihood be prohibited in any areas of the site where contamination concentrations are greater than 9 pCi/g plutonium.

EPA looks forward to working with the Service in identifying and implementing the necessary restrictions for assuring that residual contamination at the future Rocky Flats National Wildlife Refuge poses a negligible risk to workers and members of the public. Please contact me at (303) 312-6246 if you have any questions regarding these matters.

Sincerely,



Gary Klecman
Acting Rocky Flats Team Leader

cc: Dean Rundle, FWS
Steve Gunderson, CDPHE
Joe Legare, DOE
Dave Shelton, KH
Administrative Records, T130G

STATE OF COLORADO

Bill Owens, Governor
Douglas H. Banevento, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado

<http://www.cdphe.state.co.us>

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090



Colorado Department
of Public Health
and Environment

September 23, 2003

Mr. Mark Sattclberg
Senior Contaminant Biologist
US Fish and Wildlife Service
Rocky Mountain Arsenal National Wildlife Refuge
Building 111
Commerce City, CO 80222-1748

Dear Mr. Sattclberg:

The Colorado Department of Public Health and Environment has received your letter dated August 20, 2003 in which you asked the department's position concerning potential activities being considered by the US Fish and Wildlife Service (Service) for use at the future Rocky Flats National Wildlife Refuge. The Department's responses to each potential activity follow:

1. *Does CDPHE foresee any restrictions on the use of prescribed fire?*

As you know, in June 2003 CDPHE and the Environmental Protection Agency approved modifications to the Rocky Flats Cleanup Agreement, which included substantially revised contaminant soil action levels. The surface soil action level for plutonium was established at a very conservative 50 picocuries per gram of soil. Most surface soil plutonium contamination at Rocky Flats is related to airborne releases of plutonium contamination in the late 1960s that were related to the 903 Pad. The highest concentrations of plutonium contamination in surface soils found to date are at the 903 Pad itself. An accelerated action at the Pad to remove this contaminated soil is nearing completion. Lower levels of plutonium contamination in surface soil are present east of the 903 Pad. Surface soils with levels greater than 50 picocuries per gram will be removed in accordance with RFCA. Surface soils with plutonium levels lower than 50 picocuries per gram will likely be left in place.

The modified RFCA includes a site map that shows an area of land that is anticipated to be retained by DOE after site closure. This area includes the Industrial Area, the Buffer Zone retention ponds, ground water treatment systems, the two existing landfills, and the area of surface plutonium contamination located east of the 903 Pad with contamination levels above approximately 7 picocuries per gram. CDPHE does not believe that the resulting smoke and dust from a prairie fire in the area of surface soil contamination between 7 and 50 picocuries per gram would pose a human health risk. Nonetheless, the department would likely place restrictions on burning in these areas in order to minimize soil disturbance and potentially adversely impact the plutonium surface water standard.

Current data indicate that most of the land that is anticipated to be turned over to the Service after site cleanup is completed has little or no plutonium contamination, and CDPHE does not anticipate placing restrictions on prescribed burning in these areas. Final delineation of areas of the site with restrictions, including those areas that will be retained by DOE and not transferred to the Service, will be determined after completion of the Comprehensive Risk Assessment (CRA). The CRA will not be completed until 2005 at the earliest. Additional soil sampling will likely be conducted in areas of the Buffer Zone where sampling data are limited.

2. *Assuming that the deer tissue results agree with the CSU data, do you foresee any restrictions on the use of grazing as a weed management tool? Do you foresee any restrictions on the consumption of edible tissues from the grazing animals used for weed control at Rocky Flats?*

Based on historical animal studies, the actinide migration panel results, and the low levels of residual contamination that will be present at Rocky Flats after cleanup, there is little evidence to indicate that grazing will present a risk to livestock or the consumer. CDPHE would not expect to place restrictions on grazing except to minimize surface soil disturbance in those areas with residual plutonium contamination levels between approximately 7 and 50 picocuries per gram.

3. *Do you foresee any restrictions on the plowing or ripping of these types of areas for the purpose of reestablishing native vegetation?*

The plowing or ripping of surface soils would likely be prohibited in those areas with contamination between approximately 7 and 50 picocuries per gram. As stated in the answer to question number 1 above, RICA anticipates that DOE would retain the area of the site with those levels of contamination. Any roadways that cross this area could be disturbed for the purpose of revegetation and road removal, provided that adequate precautions are taken for dust and runoff control, and that any worker safety issues are addressed.

If you have any questions, please contact me at 303-692-3367.

Sincerely,



Steven H. Gunderson
Rocky Flats Project Coordinator

cc: Dean Rundle, FWS
Tim Rehder, EPA
Joe Legare, DOE
Dave Shelton, KH
Administrative Records, T130G

appendix e

Letter to Rocky Flats Cleanup
Agreement (RFCA) Parties



United States Department of the Interior

FISH AND WILDLIFE SERVICE
 Rocky Mountain Arsenal National Wildlife Refuge
 Building 111
 Commerce City, Colorado 80022-1748
 Telephone (303) 289-0232 Fax (303) 289-0579



File Code: RF

June 7, 2004

Mr. Joe Legare
 U.S. Department of Energy
 Rocky Flats Project Office
 10808 Hwy. 93, Unit A
 Building MV-72
 Golden, CO 80403

Mr. Steve Gunderson
 Colorado Department of Public Health and Environment
 4300 Cherry Creek Dr., South
 Denver, CO 80246-1530

Mr. Mark Aguilar
 U. S. Environmental Protection Agency, Region VIII
 999 18th St., Ste. 500, FPR-FT
 Denver, CO 80202-2466

Subject: U. S. Fish and Wildlife Service Recommendations on Demarcation of DOE Retained Lands at Rocky Flats

Gentlemen:

Earlier this spring, during our public hearings on the draft Comprehensive Conservation Plan/Environment Impact Statement (CCP/EIS) for the future Rocky Flats National Wildlife Refuge (RF NWR), the U.S. Fish and Wildlife Service (Service) received numerous public comments regarding the boundary between future Service and Department of Energy (DOE) retained lands at RF NWR. Both the Service and DOE had made previous public statements about agency desires for a "seamless" property. During several public meetings, I personally responded to the public that our definition of "seamless" included: 1) a boundary that was clearly marked, so that any member of the public or future Service or DOE employee would know where the boundary was; 2) a boundary that to the extent possible, did not preclude the free movement of wildlife between refuge and DOE retained lands; and 3) a boundary that did not unnecessarily detract from the visual aesthetics of the landscape.

I also told the public that the Service was not a decision-maker on demarcation of the DOE retained lands, but that we would provide recommendations to the Rocky Flats Clean-up Agreement (RFCA) parties, to assist you in your decision making process. This letter is to provide those recommendations.

The Service recommends that, following a cadastral survey, the DOE retained lands and the boundary between future refuge and those lands be marked in the following manner:

1 The entire boundary of the DOE lands should be fenced with a minimum four-strand barb wire stock fence, similar in design to the current DOE-maintained perimeter fence at Rocky Flats. This fencing will not prevent wildlife movement on the landscape, but will be a clear barrier to inadvertent human trespass from refuge to DOE lands. Stock fences are a normal part of the western landscape and we do not believe such a fence will materially

detract from the visual aesthetics of the landscape. Also, if a grazing management option is selected in the final CCP for RF NWR, a stock fence will be required to prevent livestock trespass onto DOE lands.

2. The perimeter stock fence should be posted at intervals of not less than every 300 feet, at all corners, and at all access gates with signs stating: "U.S. Department of Energy Property – No Digging – Unauthorized Access Prohibited", or words to that effect. We suggest this language, but other similar language determined by the RFCA parties is acceptable and we welcome the opportunity for input, if other language is proposed. The signs should be approximately 11" x 14" in size. We recommend baked enamel on steel signs. These will cost more initially, but enamel on steel will last almost indefinitely in the environment, and given the long-term nature of the site, quality signs will reduce maintenance costs.

3. The Service acknowledges and accepts any requirements the RFCA parties determine necessary to protect specific remedy monitoring sites within the DOE retained lands. If chain link fences are deemed necessary to prevent vandalism of monitoring equipment, we have no objection to such fencing.

4. The Service recommends that "special areas", where wastes or residual contaminants are left below the surface, be identified and have additional markers. This would apply to the Present Landfill, the Original Landfill, and that portion of the Industrial Area where original process waste lines, building foundations and subsurface contaminants remain. The boundaries of these areas should be marked with granite or cast concrete monuments of a permanent nature. We recommend monuments be configured and placed as follows.

- a. Perimeter monuments should be placed at the corners and not less than every 500' along the boundary of each Special Area
- b. Perimeter monuments should be rectangular in shape, with a beveled top, set two feet below grade, with above grade dimensions of : 2.5' tall in front, 3' tall in back, and 3' wide and 2.5' deep on top.
- c. On top, the perimeter monuments should have baked enamel on steel sign stating: "Warning" Residual Contamination Area. Unauthorized Access Prohibited. U.S. Department of Energy Property."
- d. Each perimeter monument should also be marked with an individual number.
- e. At the center of each "special area", place a larger monument, 4' above grade and 4' wide and 3' deep on top.
- f. These central monuments should be marked with baked enamel on steel signs that provide a map of the special area, orient a viewer to the direction and distances to perimeter monuments, and carry the same warning sign language as the perimeter monuments.

5. Boundaries of the Special Areas should also be surveyed. All fences and monuments should be located with GPS/GIS technology and that data should be retained as part of the Administrative Record, and Long-Term Stewardship records of the Site.

Thank you for this opportunity to provide recommendations on an important long-term stewardship issue. We believe that demarcation of DOE retained lands, as recommended above, will our meet goals of a "seamless" property, while also providing very clear and long-term notice to people on the site. We acknowledge that your agencies may have better ideas for configuration and language of signs and monuments, and will be happy to discuss those issues with the RFCA Parties.

Sincerely,



W. Dean Rundle
Refuge Manager

Cc: RFCLOG, RFCAB, RFCLOG Member Governments

appendix f

Cost Details

Cost Request Details
Rocky Flats National Wildlife Refuge

	CCP
Refuge Operations Needs System (RONS)	
Staff*	\$ 431,265
Facility Lease*	
Maintenance (Weed Management)*	50,000
Utilities*	20,020
Restoration	93,736
Trails	140,395
Visitor Facilities	249,269
Interpretation	81,000
Storage/Maintenance Building	225,000
Cistern	8,000
Septic System	12,000
Burglar Alarm	2,000
Fencing	46,613
Signs	7,405
Utility Line Installation	15,000
Computers/Fax/Office Equipment	8,800
Mountain Bike (for Patrol)	1,600
All Terrain Vehicle (ATV)	13,000
Spray-Rig for ATV	3,000
Maintenance Truck	35,000
Pickup Truck	44,000
Slip-On Spray-Rig for Truck	12,000
Mower	9,500
Maintenance Tools	10,000
Generator	
Biological Monitoring/Restoration Tools	15,000
Water Storage - 50K Gallon Bladder	15,000
Water Storage - Pumpkin	7,000
500 Gallon Fuel Tank/Pump	20,000
Shared Equipment Budget	100,000
Planning and Design	78,169
Sub-Total - RONS	\$ 1,753,772
Maintenance Management System (MMS)	
Renovate 1/2 Shed for Office	
Both RONS and MMS	
Visitor Center	
Maintenance Funds (Annual)	
Facility/Equipment Maintenance	\$ 55,779
Fire Funding:	
Fire Cache (One-Time)	\$ 50,000
Fire Engine (One-Time)	75,000
Staff (Ongoing)	133,007
Sub-Total - Fire Funding	\$ 258,007
Total Cost Requests	\$ 2,067,558

* Classified as RONS for the first year of Refuge operations, then as annual operating funds.

**Estimated CCP Costs
Rocky Flats National Wildlife Refuge**

Operations (Ongoing)							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							
Staff					(see notes)		\$ 427,914
Refuge Manager (GS-12)	Cost reflects cost/	1.0	FTE	\$ 69,939	\$ 101,412	\$ 302,115	
Biologist (GS-11)	unit increased by 45%	1.0	FTE	\$ 58,353	\$ 84,612		
Public Use (GS-9)	to reflect training,	1.0	FTE	\$ 48,230	\$ 69,934		
Range Biotech (GS-5)	supplies and benefits.	1.0	FTE	\$ 31,833	\$ 46,158		
Maintenance						\$ 100,779	
Weed Management	Staff Est. of Supplies				\$ 50,000		
Lindsay Barn	Staff Estimate				\$ 2,000		
Facility/Equipment Maintenance	5% of Facilities/Equip.				\$ 48,779		
Utilities						\$ 20,020	
Electricity		12	months	\$ 250	\$ 3,000		
Gas		12	months	\$ 250	\$ 3,000		
Phone	Over 12 months	5	lines	\$ 50	\$ 3,000		
Burglar Alarm		12	months	\$ 100	\$ 1,200		
Cleaning/Trash Pickup	Clean 2x/week				\$ 9,820		
Interpretive Materials		1	lump	\$ 5,000	\$ 5,000	\$ 5,000	
Existing Base Funding:							\$ 134,150
Staff						\$ 129,150	
Public Use Assistance (GS-11)	Cost reflects cost/	0.25	FTE	\$ 58,353	\$ 21,153		
Public Use Assistance (GS-5)	unit increased by 45%	0.50	FTE	\$ 31,833	\$ 23,079		
Administrative Assistance (GS-9)	to reflect training,	0.15	FTE	\$ 48,230	\$ 10,490		
Maintenance (WG-7)	supplies and benefits.	0.25	FTE	\$ 43,666	\$ 15,829		
Law Enforcement (GS-9)		0.50	FTE	\$ 48,230	\$ 58,599		
Maintenance						\$ 5,000	
Shared Equipment Maintenance	5% of Shared Equip.				\$ 5,000		
Total: Operations						\$ 562,064	
Net Present Value of Operations over 15 Year Period						\$ 6,249,247	
Restoration and Implementation (One-Time)							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							\$ 1,537,151
Restoration						\$ 93,736	
Seeding							
Restoration Seeding	Disturbed/Non-Native	417	ac.	\$ 134	\$ 55,878		
Seed for Eliminating Roads	27.8 miles @ 20 feet	67	ac.	\$ 134	\$ 9,031		
Seed for Road Narrowing		21	ac.	\$ 134	\$ 2,827		
Stream Crossing Restoration		26	ea.	\$ 1,000	\$ 26,000		
Facilities						\$ 465,664	
Public Use						\$ 389,664	
Trails							
New Trails - Natural Surface	3.7 Miles	19,536	l.f.	\$ 4	\$ 78,144		
ADA Accessible (Reused Road)	.9 Miles						
Prep		23,760	s.f.	\$ 0.12	\$ 2,851		
Surfacing		23,760	s.f.	\$ 2.50	\$ 59,400		
Visitor Facilities							
Restroom		1	ea.	\$ 26,000	\$ 26,000		
Viewing Blind		1	ea.	\$ 15,000	\$ 15,000		
Seasonal Contact Station		1,200	s.f.	\$ 150	\$ 180,000		
Benches		4	ea.	\$ 1,500	\$ 6,000		
Parking Lots	3 Lots/70 Cars/1 Bus						
Site Preparation		26,830	s.f.	\$ 0.38	\$ 10,195		
Surfacing		26,830	s.f.	\$ 0.45	\$ 12,074		
Interpretation							
Interpretive Sign Panels (Porcelain)		4	ea.	\$ 5,500	\$ 22,000		
Interpretive Signs (Porcelain)	Trails, Sm. Entrances	6	ea.	\$ 4,000	\$ 24,000		
Kiosk		1	ea.	\$ 10,000	\$ 10,000		
Interior Display		1	lump	\$ 20,000	\$ 20,000		

	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
Administrative						\$ 316,018	
Administrative Offices	Incl. in Contact Sta.				\$ -		
Storage/Maintenance Building	30'x75'	1	lump	\$ 225,000	\$ 225,000		
Cistern		1	ea.	\$ 8,000	\$ 8,000		
Septic System		1	lump	\$ 12,000	\$ 12,000		
Burglar Alarm		1	lump	\$ 2,000	\$ 2,000		
Fencing							
Remove Interior Stock Fence	Approx. 8 Miles	42,240	l.f.	\$ 0.50	\$ 21,120		
Weed Control Fencing	Approx. 3 Miles	15,840	l.f.	\$ 0.17	\$ 2,693		
Security Fencing around Facilities		400	l.f.	\$ 57	\$ 22,800		
Signs							
Roadside		6	ea.	\$ 650	\$ 3,900		
Boundary	Every 1,000 Feet	67	ea.	\$ 15	\$ 1,005		
Trail Directional		5	ea.	\$ 500	\$ 2,500		
Utilities							
Power		1	lump	\$ 15,000	\$ 15,000		
Equipment						\$ 193,900	
Computers/Fax/Office Equipment		4	emp.	\$ 2,200	\$ 8,800		
Mountain Bike (for Patrol)		2	ea.	\$ 800	\$ 1,600		
All Terrain Vehicle (ATV)		2	ea.	\$ 6,500	\$ 13,000		
Spray-Rig for ATV		2	ea.	\$ 1,500	\$ 3,000		
Maintenance Truck		1	ea.	\$ 35,000	\$ 35,000		
Pickup Truck		2	ea.	\$ 22,000	\$ 44,000		
Slip-On Spray-Rig for Truck		1	ea.	\$ 12,000	\$ 12,000		
Mower		1	ea.	\$ 9,500	\$ 9,500		
Maintenance Tools		1	lump	\$ 10,000	\$ 10,000		
Biological Monitoring/Restoration Tools		1	lump	\$ 15,000	\$ 15,000		
Water Storage - 50K Gallon Bladder		1	ea.	\$ 15,000	\$ 15,000		
Water Storage - Pumpkin		2	ea.	\$ 3,500	\$ 7,000		
500 Gallon Fuel Tank/Pump		2	ea.	\$ 10,000	\$ 20,000		
Planning and Design						\$ 78,169	
Site Layout and Design	10% of Construction	1	lump	\$ 78,169	\$ 78,169		
Existing Base Funding:							\$ 100,000
Shared Equipment Budget		1	lump	\$ 100,000	\$ 100,000	\$ 100,000	
Total: Restoration and Implementation						\$ 1,637,151	
Net Present Value of Restoration and Implementation over 15 Year Period						\$ 1,159,182	
Fire Management							
	Notes	Quantity	Units	Cost/Unit	Cost	Subtotal	Area Subtotal
New Funding:							\$ 258,007
Equipment						\$ 125,000	
Fire Cache (One-Time)	Staff Est. of Supplies				\$ 50,000		
Fire Engine (One Time)					\$ 75,000		
Staff (Ongoing)						\$ 133,007	
Fire Program Technician (GS-6/9)	<i>Cost reflects cost/ unit increased by 45%</i>	1	FTE	\$ 49,283	\$ 49,283		
Fire Engine Foreman (GS-5/6)	<i>to reflect training,</i>	1	FTE	\$ 44,211	\$ 44,211		
Fire Fighters (Seasonal) (GS-4/5)	<i>supplies and benefits.</i>	1	FTE	\$ 39,514	\$ 39,514		
Total: Fire Management						\$ 258,007	
Net Present Value of Fire Management over 15 Year Period						\$ 1,599,016	

appendix g

Species Lists

ROCKY FLATS NWR WILDLIFE SPECIES LIST

BIRDS

Raptors

American kestrel	<i>Falco sparverius</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barn owl	<i>Tyto alba</i>
Black vulture	<i>Coragyps atratus</i>
Broad-winged hawk	<i>Buteo platypterus</i>
Burrowing owl	<i>Athene cunicularia</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Ferruginous hawk	<i>Buteo regalis</i>
Golden eagle	<i>Aquila chrysaetos</i>
Great horned owl	<i>Bubo virginianus</i>
Long-eared owl	<i>Asio otus</i>
Merlin	<i>Falco columbarius</i>
Northern goshawk	<i>Accipiter gentilis</i>
Northern harrier	<i>Circus cyaneus</i>
Osprey	<i>Pandion haliaetus</i>
Peregrine falcon	<i>Falco peregrinus</i>
Prairie falcon	<i>Falco mexicanus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Short-eared owl	<i>Asio flammeus</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Turkey vulture	<i>Cathartes aura</i>

Songbirds

American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Carduelis tristis</i>
American pipit	<i>Anthus rubescens</i>
American redstart	<i>Setophaga ruticilla</i>
American robin	<i>Turdus migratorius</i>
American tree sparrow	<i>Spizella arborea</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
Barn swallow	<i>Hirundo rustica</i>
Belted kingfisher	<i>Ceryle alcyon</i>
Black swift	<i>Cypseloides niger</i>
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
Black-billed magpie	<i>Pica hudsonia</i>
Black-capped chickadee	<i>Poecile atricapilla</i>
Black-headed grosbeak	<i>Pheucticus elanocephalus</i>
Black-throated gray warbler	<i>Dendroica nigrescens</i>
Blue grosbeak	<i>Guiraca caerulea</i>
Blue jay	<i>Cyanocitta cristata</i>
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>
Blue-headed vireo	<i>Vireo solitarius</i>
Bohemian waxwing	<i>Bombycilla garrulus</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brewer's sparrow	<i>Spizella breweri</i>
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>
Brown thrasher	<i>Toxostoma rufum</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Bullock's oriole	<i>Icterus bullockii</i>

Cassin's finch	<i>Carpodacus cassinii</i>
Cassin's sparrow	<i>Aimophila cassinii</i>
Chestnut-collared longspur	<i>Calcarius ornatus</i>
Chestnut-sided warbler	<i>Dendroica pensylvanica</i>
Chipping sparrow	<i>Spizella passerina</i>
Clay-colored sparrow	<i>Spizella pallida</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Common grackle	<i>Quiscalus quiscula</i>
Common nighthawk	<i>Chordeiles minor</i>
Common poorwill	<i>Phalaenoptilus nuttallii</i>
Common raven	<i>Corvus corax</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Cordilleran flycatcher	<i>Empidonax occidentalis</i>
Dark-eyed junco	<i>Junco hyemalis canice</i>
Downy woodpecker	<i>Picoides pubescens</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Eastern phoebe	<i>Sayornis phoebe</i>
European starling	<i>Sturnus vulgaris</i>
Field sparrow	<i>Spizella pusilla</i>
Fox sparrow	<i>Passerella iliaca</i>
Golden-crowned kinglet	<i>Regulus satrapa</i>
Grasshopper sparrow	<i>Ammodramus savannarum</i>
Gray catbird	<i>Dumetella carolinensis</i>
Green-tailed towhee	<i>Pipilo chlorurus</i>
Hairy woodpecker	<i>Picoides villosus</i>
Hermit thrush	<i>Catharus guttatus</i>
Horned lark	<i>Eremophila alpestris</i>
House finch	<i>Carpodacus mexicanus</i>
House sparrow	<i>Passer domesticus</i>
House wren	<i>Troglodytes aedon</i>
Lapland longspur	<i>Calcarius lapponicus</i>
Lark bunting	<i>Calamospiza melanocorys</i>
Lark sparrow	<i>Chondestes grammacus</i>
Lazuli bunting	<i>Passerina amoena</i>
Lesser goldfinch	<i>Carduelis psaltria</i>
Lincoln's sparrow	<i>Melospiza lincolni</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
MacGillivray's warbler	<i>Opornis tolmiei</i>
Marsh wren	<i>Cistothorus palustris</i>
Mountain bluebird	<i>Sialia currucoides</i>
Mountain chickadee	<i>Parus gambelii</i>
Mourning dove	<i>Zenaidura macroura</i>
Northern flicker	<i>Colaptes auratus</i>
Northern mockingbird	<i>Mimus polyglottus</i>
Northern shrike	<i>Lanius excubitor</i>
Orange-crowned warbler	<i>Vermivora celata</i>
Ovenbird	<i>Seiurus aurocapillus</i>
Palm warbler	<i>Dendroica palmarum</i>
Pine siskin	<i>Carduelis pinus</i>
Red-breasted nuthatch	<i>Sitta canadensis</i>
Red-naped sapsucker	<i>Sphyrapicus nuchalis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Rock dove	<i>Columba livia</i>
Rock wren	<i>Salpinctes obsoletus</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>

Rufous hummingbird	<i>Selasphorus rufus</i>
Sage thrasher	<i>Oreoscoptes montanus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Say's phoebe	<i>Sayornis saya</i>
Snow bunting	<i>Plectrophenax nivalis</i>
Song sparrow	<i>Melospiza melodia</i>
Spotted towhee	<i>Pipilo maculatus</i>
Swainson's thrush	<i>Catharus ustulatus</i>
Townsend's solitaire	<i>Myadestes townsendi</i>
Tree swallow	<i>Tachycineta bicolor</i>
Vesper sparrow	<i>Poocetes gramineus</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
Virginia's warbler	<i>Vermivora virginiae</i>
Warbling vireo	<i>Vireo gilvus</i>
Western bluebird	<i>Sialia mexicana</i>
Western kingbird	<i>Tyrannus verticalis</i>
Western meadowlark	<i>Sturnella neglecta</i>
Western tanager	<i>Piranga ludoviciana</i>
Western wood-pewee	<i>Contopus sordidulus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Willow flycatcher	<i>Empidonax trailii</i>
Wilson's warbler	<i>Wilsonia pusilla</i>
Yellow warbler	<i>Dendroica petechia</i>
Yellow-breasted chat	<i>Icteria virens</i>
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>

Upland Game

Ring-necked pheasant	<i>Phasianus colchicus</i>
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>

Waterfowl and Shorebirds

American bittern	<i>Botaurus lentiginosus</i>
American coot	<i>Fulica americana</i>
American white pelican	<i>Pelecanus erythrorhynchos</i>
American wigeon	<i>Anas americana</i>
Black-crowned night-heron	<i>Nycticorax nycticorax</i>
Blue-winged teal	<i>Anas discors</i>
Bufflehead	<i>Bucephala albeola</i>
Canada goose	<i>Branta canadensis</i>
Canvasback	<i>Aythya valisineria</i>
Cinnamon teal	<i>Anas cyanoptera</i>
Common goldeneye	<i>Bucephala clangula</i>
Common merganser	<i>Mergus merganser</i>
Common snipe	<i>Gallinago gallinago</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Eared grebe	<i>Podiceps nigricollis</i>
Franklin's gull	<i>Larus pipixcan</i>
Gadwall	<i>Anas strepera</i>
Great blue heron	<i>Ardea herodias</i>
Great egret	<i>Ardea alba</i>
Greater scaup	<i>Aythya marila</i>
Greater yellowlegs	<i>Tringa melanoleuca</i>
Green-winged teal	<i>Anas crecca</i>
Hooded merganser	<i>Lophodytes cucullatus</i>

Killdeer	<i>Charadrius vociferus</i>
Lesser scaup	<i>Aythya affinis</i>
Lesser yellowlegs	<i>Tringa flavipes</i>
Long-billed curlew	<i>Numenius americanus</i>
Mallard	<i>Anas platyrhynchos</i>
Northern pintail	<i>Anas acuta</i>
Northern shoveler	<i>Anas clypeata</i>
Pectoral sandpiper	<i>Calidris melanotos</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Redhead	<i>Aythya americana</i>
Ring-billed gull	<i>Larus delawarensis</i>
Ring-necked duck	<i>Aythya collaris</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
Semipalmated plover	<i>Charadrius semipalmatus</i>
Semipalmated sandpiper	<i>Calidris pusilla</i>
Snow goose	<i>Chen caerulescens</i>
Snowy egret	<i>Egretta thula</i>
Solitary sandpiper	<i>Tringa solitaria</i>
Sora	<i>Porzana carolina</i>
Spotted sandpiper	<i>Actitis macularia</i>
Virginia rail	<i>Rallus limicola</i>
Western grebe	<i>Aechmophorus occidentalis</i>
White-faced Ibis	<i>Plegadis chihi</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Wilson's phalarope	<i>Phalaropus tricolor</i>
Wood duck	<i>Aix sponsa</i>

MAMMALS

American black bear	<i>Ursus americanus</i>
Big brown bat	<i>Eptesicus fuscus</i>
Black-tailed jackrabbit	<i>Lepus californicus</i>
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>
Bobcat	<i>Lynx rufus</i>
Common gray fox	<i>Urocyon cinereoargenteus</i>
Common porcupine	<i>Erethizon dorsatum</i>
Coyote	<i>Canis latrans</i>
Deer mouse	<i>Peromyscus maniculatus</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
Eastern fox squirrel	<i>Sciurus niger</i>
Elk (Wapiti)	<i>Cervus elaphus</i>
Hispid pocket mouse	<i>Chaetodipus hispidus</i>
House mouse	<i>Mus musculus</i>
Long-tailed vole	<i>Microtus longicaudus</i>
Masked shrew	<i>Sorex cinereus</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Merriam's shrew	<i>Sorex merriami</i>
Mexican woodrat	<i>Neotoma mexicana</i>
Mountain lion	<i>Felis concolor</i>
Mule deer	<i>Odocoileus hemionus</i>
Mule x White-tailed deer	<i>Odocoileus hemionus x virginianus</i>
Muskrat	<i>Ondatra zibethicus</i>
Northern pocket gopher	<i>Thomomys talpoides</i>
Olive-backed pocket mouse	<i>Perognathus fasciatus</i>
Plains harvest mouse	<i>Reithrodontomys montanus</i>
Plains pocket mouse	<i>Perognathus flavescens</i>
Prairie vole	<i>Microtus ochrogaster</i>

Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Red-sided garter snake	<i>Thamnophis sirtalis</i>
Raccoon	<i>Procyon lotor</i>	Short-horned lizard	<i>Phrynosoma douglassi</i>
Red fox	<i>Vulpes vulpes</i>	Snapping turtle	<i>Chelydra serpentina</i>
Silky pocket mouse	<i>Perognathus flavus</i>	Tiger salamander	<i>Ambystoma tigrinum</i>
Striped skunk	<i>Mephitis mephitis</i>	Unidentified lizard	
Thirteen-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>	Western painted turtle	<i>Chrysemys picta</i>
Chipmunk	<i>Eutamias spp.</i>	Western plains garter snake	<i>Thamnophis radix</i>
Western harvest mouse	<i>Reithrodontomys megalotis</i>		
Western jumping mouse	<i>Zapus princeps</i>		
White-tailed deer	<i>Odocoileus virginianus</i>		

REPTILES AND AMPHIBIANS

Boreal chorus frog	<i>Pseudacris triseriatus maculata</i>
Bullfrog	<i>Rana catesbeiana</i>
Bullsnake	<i>Pituophis melanoleucus</i>
Eastern yellowbelly racer	<i>Coluber constrictor</i>
Great Plains toad	<i>Bufo cognatus</i>
Northern leopard frog	<i>Rana pipiens</i>
Prairie rattlesnake	<i>Crotalus viridis</i>

OTHERS

The following types invertebrate species have also been identified at Rocky Flats:

- 63 species of phytoplankton
- 63 species of zooplankton
- 197 macrobiotic invertebrates
- 72 emergent insects
- 688 terrestrial invertebrates

FISH

Bluegill	<i>Lepomis macrochirus</i>
Creek chub	<i>Semotilus atromaculatus</i>
Common shiner	<i>Luxilus cornutus</i>
Fathead minnow	<i>Pimephales promelas</i>
Green sunfish	<i>Lepomis cyanellus</i>
Northern redbelly dace	<i>Phoxinus eos</i>
Largemouth bass	<i>Micropterus salmoides</i>
Longnose dace	<i>Rhinichthys cataractae</i>
Smallmouth bass	<i>Micropterus dolomieu</i>
Stoneroller	<i>Campostoma anomalum</i>
White sucker	<i>Catostomus commersoni</i>

ROCKY FLATS NWR PLANT SPECIES LIST

Listed in alphabetical order by scientific name.
State listed noxious weeds are marked with an *.

GRASSES

Jointed Goatgrass*	<i>Aegilops cylindrica</i> X <i>Agrohordeum macounii</i>	Meadow Fescue	<i>Festuca pratensis</i>
Slender Wheatgrass	<i>Agropyron caninum</i>	Tall Mannagrass	<i>Glyceria grandis</i>
Crested Wheatgrass	<i>Agropyron cristatum</i>	Fowl Mannagrass	<i>Glyceria striata</i>
Thickspike Wheatgrass	<i>Agropyron dasystachyum</i>	Meadow Barley	<i>Hordeum brachyantherum</i>
Crested Wheatgrass	<i>Agropyron desertorum</i>	Foxtail Barley	<i>Hordeum jubatum</i>
Tall Wheatgrass	<i>Agropyron elongatum</i>	Little Barley	<i>Hordeum pusillum</i>
Griffin's Wheatgrass	<i>Agropyron griffithsii</i>	Junegrass	<i>Koeleria pyramidata</i>
Intermediate		Rice Cutgrass	<i>Leersia oryzoides</i>
Wheatgrass	<i>Agropyron intermedium</i>	Italian Ryegrass	<i>Lolium perenne</i>
Quackgrass *	<i>Agropyron repens</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Western Wheatgrass	<i>Agropyron smithii</i>	Wolftail	<i>Lycurus phleoides</i>
Bluebunch Wheatgrass	<i>Agropyron spicatum</i>	Scratchgrass	<i>Muhlenbergia asperifolia</i>
Ticklegrass	<i>Agrostis scabra</i>	Muhly	<i>Muhlenbergia filiformis</i>
Redtop	<i>Agrostis stolonifera</i>	Mountain Muhly	<i>Muhlenbergia montana</i>
Marsh Foxtail	<i>Alopecurus geniculatus</i>	Marsh Muhly	<i>Muhlenbergia racemosa</i>
Big Bluestem	<i>Andropogon gerardii</i>	Spike Muhly	<i>Muhlenbergia wrightii</i>
Silver Bluestem	<i>Andropogon saccharoides</i>	Indian Ricegrass	<i>Oryzopsis hymenoides</i>
Little Bluestem	<i>Andropogon scoparius.</i>	Witchgrass	<i>Panicum capillare</i>
Italian Windgrass	<i>Apera interrupta</i>	Fall Panicum	<i>Panicum dichotomiflorum</i>
Forktip Threeawn	<i>Aristida basiramea</i>	Switchgrass	<i>Panicum virgatum</i>
Fendler Threeawn	<i>Aristida purpurea</i>	Reed Canarygrass	<i>Phalaris arundinacea</i>
Red Threeawn	<i>Aristida purpurea</i>	Timothy	<i>Phleum pratense</i>
Cultivated Oats	<i>Avena fatua var. sativa</i>	Common Reed	<i>Phragmites australis</i>
Side-oats Grama	<i>Bouteloua curtipendula</i>	Bulbous Bluegrass	<i>Poa bulbosa</i>
Blue Grama	<i>Bouteloua gracilis</i>	Canby's Bluegrass	<i>Poa canbyi</i>
Hairy Grama	<i>Bouteloua hirsuta</i>	Canada Bluegrass	<i>Poa compress</i>
Rattlesnake Grass	<i>Bromus briziformis</i>	Muttongrass	<i>Poa fendleriana</i>
Smooth Brome	<i>Bromus inermis</i>	Alkali Bluegrass	<i>Poa juncifolia</i>
Japanese Brome	<i>Bromus japonicus</i>	Fowl Bluegrass	<i>Poa palustris</i>
Downy Brome *	<i>Bromus tectorum</i>	Kentucky Bluegrass	<i>Poa pratensis</i>
Buffalo-grass	<i>Buchloe dactyloides</i>	Rabbitfoot Grass	<i>Polypogon monspeliensis</i>
Northern Reedgrass	<i>Calamagrostis stricta</i>	Tumblegrass	<i>Schedonnardus paniculatus.</i>
Field Sandbur	<i>Cenchrus longispinus</i>	Rye	<i>Secale cereale</i>
Rescuegrass	<i>Ceratochloa marginata</i>	Green Foxtail	<i>Setaria viridis</i>
Bermuda Grass	<i>Cynodon dactylon</i>	Squirreltail	<i>Sitanion hystrix</i>
Orchardgrass	<i>Dactylis glomerata</i>	Indian-grass	<i>Sorghastrum nutans</i>
Poverty Oatgrass	<i>Danthonia spicata</i>	Prairie Cordgrass	<i>Spartina pectinata</i>
Slimleaf Dichanthelium	<i>Dichanthelium linearifolium</i>	Prairie Wedgegrass	<i>Sphenopholis obtusata.</i>
Scribner Dichanthelium	<i>Dichanthelium oligosanthes</i>	Rough Dropseed	<i>Sporobolus asper</i>
Hairy Crabgrass	<i>Digitaria sanguinalis</i>	Sand Dropseed	<i>Sporobolus cryptandrus</i>
Inland Salt Grass	<i>Distichlis spicata</i>	Prairie Dropseed	<i>Sporobolus heterolepis</i>
Barnyard Grass	<i>Echinochloa crusgallii.</i>	Poverty Grass	<i>Sporobolus neglectus</i>
Canada Wild Rye	<i>Elymus canadensis</i>	Needle-and-thread	<i>Stipa comata</i>
Russian Wild Rye	<i>Elymus juncea</i>	New Mexico Feather	
Stinkgrass	<i>Eragrostis cilianensis</i>	Grass	<i>Stipa neomexicana</i>
Weeping Lovegrass	<i>Eragrostis curvula</i>	Sleepy Grass	<i>Stipa robusta</i>
Little Lovegrass	<i>Eragrostis minor</i>	Porcupine-grass	<i>Stipa spartea</i>
India Lovegrass	<i>Eragrostis pilosa</i>	Green Needlegrass	<i>Stipa viridula</i>
Sand Lovegrass	<i>Eragrostis trichodes</i>	Wheat	<i>Triticum aestivum</i>
Six-weeks Fescue	<i>Festuca octoflora</i>	Narrow-leaved Cattail	<i>Typha angustifolia</i>
Sheep's Fescue	<i>Festuca ovina</i>	Common Cattail	<i>Typha latifolia</i>
		Blue-eyed Grass	<i>Sisyrinchium montanum</i>
		Articulate Rush	<i>Juncus articulatus</i>
		Baltic Rush	<i>Juncus balticus</i>

Orange Paintbrush	<i>Castilleja integra</i>	Dragonhead	<i>Dracocephalum parviflorum</i>
Downy Paintbrush	<i>Castilleja sessiliflora</i> .	Fetid Marigold	<i>Dyssodia papposa</i>
Diffuse Knapweed *	<i>Centaurea diffusa</i>	Hedgehog Cactus	<i>Echinocereus viridiflorus</i>
Russian Knapweed *	<i>Centaurea repens</i>	Willow Herb	<i>Epilobium ciliatum</i>
Yellow Star Thistle	<i>Centaurea solstitialis</i>	Willow Herb	<i>Epilobium paniculatum</i>
Prairie Chickweed	<i>Cerastium arvense</i>	Fleabane	<i>Erigeron canus</i>
Short-stalked		Fleabane	<i>Erigeron compositus</i>
Chickweed	<i>Cerastiumbrachypodum</i>	Fleabane	<i>Erigeron divergens</i>
Common Mouse-Ear	<i>Cerastium vulgatum</i>	Fleabane	<i>Erigeron flagellaris</i>
Coontail	<i>Ceratophyllum demersum</i>	Fleabane	<i>Erigeron pumilus</i>
Lamb's Quarters	<i>Chenopodium album</i>	Oregon Fleabane	<i>Erigeron speciosa</i>
Dark Goosefoot	<i>Chenopodium atrovirens</i>	Daisy Fleabane	<i>Erigeron strigosus</i>
Pitseed Goosefoot	<i>Chenopodium berlandieri</i>	LaVeta Fleabane	<i>Erigeron vetensis</i>
Jerusalem Oak	<i>Chenopodium botrys</i>	Winged Eriogonum	<i>Eriogonum alatum</i>
Desert goosefoot	<i>Chenopodium dessicatum</i>	Spreading Wild	
Fremont Goosefoot	<i>Chenopodium fremontii</i>	Buckwheat	<i>Eriogonum effusum</i>
Goosefoot	<i>Chenopodium leptophyllum</i>	James' Wild	
Overi's Goosefoot	<i>Chenopodium overi</i>	Buckwheat	<i>Eriogonum jamesii</i>
Blue Mustard	<i>Chorispora tenella</i>	Sulphur Flower	<i>Eriogonum umbellatum</i>
Ox-eye Daisy	<i>Chrysanthemum leucanthemum</i>	Filaria	<i>Erodium cicutarium</i>
Golden Aster	<i>Chrysopsis fulcrata</i>	Western Wallflower	<i>Erysimum capitatum</i>
Golden Aster	<i>Chrysopsis villosa</i>	Bushy Wallflower	<i>Erysimum repandum</i>
Common Chicory *	<i>Cichorium intybus</i>	Toothed Spurge	<i>Euphorbia dentata</i>
Water Hemlock	<i>Cicuta maculata</i>	Fendler's Euphorbia	<i>Euphorbia fendleri</i>
Canada Thistle *	<i>Cirsium arvense</i>	Snow-on-the-Mountain	<i>Euphorbia marginata</i>
Flodman's Thistle	<i>Cirsium flodmanni</i>	Spurge	<i>Euphorbia robusta</i>
Yellow Spine Thistle	<i>Cirsium ochrocentrum</i>	Thyme-leaved Spurge	<i>Euphorbia serpyllifolia</i>
Wavyleaf Thistle	<i>Cirsium undulatum</i>	Spurge	<i>Euphorbia spathulata</i>
Bull Thistle *	<i>Cirsium vulgare</i>	Fumitory	<i>Fumaria vaillantii</i>
Spring Beauty	<i>Claytonia rosea</i>	Blanket Flower	<i>Gaillardia aristata</i>
Rocky Mountain		Catchweed Bedstraw	<i>Galium aparine</i>
Beeplant	<i>Cleome serrulata</i>	Northern Bedstraw	<i>Galium septentrionale</i>
Blue Lips	<i>Collinsia parviflora</i>	Scarlet Gaura	<i>Gaura coccinea</i>
Collomia	<i>Collomia linearis</i>	Velvety Gaura	<i>Gaura parviflora</i>
Bastard Toadflax	<i>Comandra umbellata</i>	Yellow Avens	<i>Geum alepicum</i>
Poison Hemlock *	<i>Conium maculatum</i>	Large-leaved Avens	<i>Geum macrophyllum</i>
Community Champion	<i>Conosilene conica</i>	Northern Gentian	<i>Gentiana affinis</i>
Hare's-ear Mustard	<i>Conringia orientalis</i>	Common Wild	
Horseweed	<i>Conyza canadensis</i>	Geranium	<i>Geranium caespitosum</i>
Crown Vetch	<i>Coronilla varia</i>	Gilia	<i>Gilia ophthalmoides</i>
Nipple Cactus	<i>Coryphantha missouriensis</i>	Wild Licorice	<i>Glycyrrhiza lepidota</i>
Hawksbeard	<i>Crepis occidentalis</i>	Cotton-batting	<i>Gnaphalium chilense</i>
Hawksbeard	<i>Crepis runcinata</i>	Hedge Hyssop	<i>Gratiola neglecta</i>
Miners Candle	<i>Cryptantha virgata</i>	Curly-top Gumweed	<i>Grindelia squarrosa</i>
Dodder	<i>Cuscuta approximata</i>	Northern Green Orchid	<i>Habenaria hyperborea</i>
Hound's Tongue	<i>Cynoglossum officinale</i>	Large-flowered	
Taperleaf Flatsedge	<i>Cyperus acuminatus</i>	Stickseed	<i>Hackelia floribunda</i>
Fragile Fern	<i>Cystopteris fragilis</i>	Cutleaf Ironplant	<i>Happlopappus spinulosus</i>
White Prairie Clover	<i>Dalea candida</i>	Whiskbroom Parsley	<i>Harbouria trachypleura</i>
Purple Prairie Clover	<i>Dalea purpurea</i>	Rough False	
Wild Carrot	<i>Daucus carota</i>	Pennyroyal	<i>Hedeoma hispidum</i>
Blue Larkspur	<i>Delphinium nuttalianum</i>	Common Sunflower	<i>Helianthus annuus</i>
Prairie Larkspur	<i>Delphinium virescens</i>	Texas Blue Weed	<i>Helianthus ciliaris</i>
Tansy Mustard	<i>Descurainia pinnata</i>	Maximilian Sunflower	<i>Helianthus maximiliani</i>
Tansy Mustard	<i>Descurainia richardsonii</i>	Nuttall's Sunflower	<i>Helianthus nuttallii</i>
Flixweed	<i>Descurainia sophia</i>	Plains Sunflower	<i>Helianthus petiolaris</i>
Shooting Star	<i>Dodecatheon pulchellum</i>	Sunflower	<i>Helianthus pumilus</i>
Yellow Whitlowort	<i>Draba nemorosa</i>	Stiff Sunflower	<i>Helianthus rigidus</i>
White Whitlowort	<i>Draba reptans</i>	Showy Goldeneye	<i>Heliomeris multiflora</i>

Cow Parsnip	<i>Heracleum sphondylium</i>	Monkey Flower	<i>Mimulus floribundus</i>
Dame's Rocket *	<i>Hesperis matronalis</i>	Roundleaf Monkey- flower	<i>Mimulus glabratus</i>
Alumroot	<i>Heuchera parvifolia</i>	Hairy Four-O'Clock	<i>Mirabilis hirsuta</i>
Nodding Green Violet	<i>Hybanthus verticillatus</i>	Narrowleaf Four O'Clock	<i>Mirabilis linearis</i>
Waterleaf	<i>Hydrophyllum fendleri</i>	Wild Four-O'Clock	<i>Mirabilis nyctaginea</i>
Hymenopappus	<i>Hymenopappus filifolius</i>	Wild Bergamot	<i>Monarda fistulosa</i>
Greater St. John's-wort	<i>Hypericum majus</i>	Spotted Bee-Balm	<i>Monarda pectinata</i>
Common St. John's- wort *	<i>Hypericum perforatum</i>	Musineon	<i>Mynosurus divaricatum</i>
Spike Gilia	<i>Ipomopsis spicata</i>	Mousetail	<i>Myosurus minimus</i>
Western Blue Flag	<i>Iris missouriensis</i>	American Milfoil	<i>Myriophyllum exalbescens.</i>
Poverty Weed	<i>Iva axillaris</i>	Watercress	<i>Nasturtium officinale</i>
Marsh Elder	<i>Iva xanthifolia</i>	Navarretia	<i>Navarretia minima</i>
Kochia	<i>Kochia scoparia</i>	Catnip	<i>Nepeta cataria</i>
False Boneset	<i>Kuhnia chlorolepis</i>	Evening Primrose	<i>Oenothera flava</i>
False Boneset	<i>Kuhnia eupatorioides</i>	Yellow Stemless Evening Primrose	<i>Oenothera howardii</i>
Blue Lettuce	<i>Lactuca oblongifolia.</i>	Common Evening Primrose	<i>Oenothera villosa</i>
Prickly Lettuce	<i>Lactuca serriola</i>	Scotch Thistle *	<i>Onopordum acanthium</i>
Stickseed	<i>Lappula redowskii</i>	False Gromwell	<i>Onosmodium molle</i>
Purple Peavine	<i>Lathyrus eucosmus</i>	Pale Evening Primrose	<i>Oenothera albicaulis</i>
Duckweed	<i>Lemna minor</i>	Little Prickly Pear	<i>Opuntia fragilis</i>
Field Peppergrass	<i>Lepidium campestre</i>	Twistspine Prickly Pear	<i>Opuntia macrorhiza</i>
Peppergrass	<i>Lepidium densiflorum</i>	Plains Prickly Pear	<i>Opuntia polyacantha</i>
Bladderpod	<i>Lesquerella montana</i>	Broomrape	<i>Orobanche fasciculata</i>
White Aster	<i>Leucelene ericoides</i>	Sweet Cicely	<i>Osmorhiza chiliensis</i>
Mountain Lily	<i>Leucocrinum montanum</i>	Anise Root	<i>Osmorhiza longistylis</i>
Blazing Star	<i>Liatris punctata</i>	Gray-Green Wood Sorrel	<i>Oxalis dillenii.</i>
Porter's Lovage	<i>Ligusticum porteri</i>	Purple Locoweed	<i>Oxytropis lambertii</i>
Mudwort	<i>Limosella aquatica</i>	Pennsylvania Pellitory	<i>Parietaria pennsylvanica</i>
Texas Toadflax	<i>Linaria canadensis.</i>	James' Nailwort	<i>Paronychia jamesii</i>
Dalmatian Toadflax *	<i>Linaria dalmatica</i>	Nipple Cactus	<i>Pediocactus simpsonii</i>
Butter-and-eggs*	<i>Linaria vulgaris</i>	White Beardtongue	<i>Penstemon albidus</i>
Blue Flax	<i>Linum perenne</i>	Penstemon	<i>Penstemon secundiflorus</i>
Norton's Flax	<i>Linum pratense</i>	Rocky Mountain Penstemon	<i>Penstemon strictus</i>
Plains Flax	<i>Linum puberulum</i>	Slender Penstemon	<i>Penstemon virens</i>
Fog-fruit	<i>Lippia cuneifolia</i>	Penstemon	<i>Penstemon virgatus</i>
Puccoon	<i>Lithospermum incisum</i>	Scorpionweed	<i>Phacelia heterophylla</i>
Puccoon	<i>Lithospermum multiflorum</i>	Clammy Ground cherry	<i>Physalis heterophylla</i>
Great Lobelia	<i>Lobelia siphilitica</i>	Prairie Ground Cherry	<i>Physalis pumila</i>
Wild Parsley	<i>Lomatium orientale</i>	Virginia Ground Cherry	<i>Physalis virginiana</i>
Birdfoot Trefoil	<i>Lotus corniculatus</i>	Double Bladder-pod	<i>Physaria vitulifera</i>
Silvery Lupine	<i>Lupinus argenteus</i>	Picradeniopsis	<i>Picradeniopsis oppositifolia</i>
American Bugleweed	<i>Lycopus americanus</i>	Popcorn Flower	<i>Plagiobothrys scouleri</i>
Rough Bugleweed	<i>Lycopus asper</i>	English Plantain	<i>Plantago lanceolata</i>
Skeleton-weed	<i>Lygodesmia juncea</i>	Common Plantain	<i>Plantago major</i>
Fringed Loostripe	<i>Lysimachia ciliata</i>	Patagonian Plantain	<i>Plantago patagonica.</i>
Winged Loosestrife	<i>Lythrum alatum</i>	Clammy-weed	<i>Polansia dodecandra</i>
Bigelovi's Tansy Aster	<i>Machaeranthera bigelovii</i>	Knotweed	<i>Polygonum arenastrum.</i>
Hoary Aster	<i>Machaeranthera canescens</i>	Wild Buckwheat	<i>Polygonum convolvulus.</i>
Tarweed	<i>Madia glomerata</i>	Knotweed	<i>Polygonum douglasii</i>
Common Mallow	<i>Malva neglecta</i>	Water Pepper	<i>Polygonum hydropiper</i>
Common Horehound	<i>Marrubium vulgare</i>	Pale Smartweed	<i>Polygonum lapathifolium</i>
Black Medick	<i>Medicago lupulina</i>	Pennsylvania Smartweed	<i>Polygonum pennsylvanicum</i>
Alfalfa	<i>Medicago sativa</i>	Lady's Thumb	<i>Polygonum persicaria</i>
White Sweetclover	<i>Melilotus alba</i>		
Yellow Sweetclover	<i>Melilotus officinalis</i>		
Field Mint	<i>Mentha arvensis</i>		
Bluebells	<i>Mertensia lanceolata</i>		
False Dandelion	<i>Microseris cuspidata</i>		

Knotweed	<i>Polygonum ramosissimum</i>	Low Goldenrod	<i>Solidago nana</i>
Knotweed	<i>Polygonum sawatchense</i>	Rigid Goldenrod	<i>Solidago rigida</i>
Common Purslane	<i>Portulaca oleracea</i>	Field Sow Thistle	<i>Sonchus arvensis</i>
Leafy Pondweed	<i>Potamogeton foliosus</i>	Prickly Sow Thistle	<i>Sonchus asper</i>
Floatingleaf Pondweed	<i>Potamogeton natans</i>	Sand Spurry	<i>Spergularia rubra</i>
Tall Cinquefoil	<i>Potentilla arguta</i>	Red False Mallow	<i>Sphaeralcea coccinea</i>
Cinquefoil	<i>Potentilla fissa</i>	Hedge Nettle	<i>Stachys palustris</i>
Cinquefoil	<i>Potentilla gracilis</i>	Long-leaved Stitchwort	<i>Stellaria longifolia</i>
Wooly Cinquefoil	<i>Potentilla hippiana</i>	Wire Lettuce	<i>Stephanomeria pauciflora</i>
Norwegian Cinquefoil	<i>Potentilla norvegica</i>	Green Gentian	<i>Swertia radiata</i>
Bushy Cinquefoil	<i>Potentilla paradoxa</i>	Prairie Fameflower	<i>Talinum parviflorum</i>
Cinquefoil	<i>Potentilla pensylvanica</i>	Red Seeded Dandelion	<i>Taraxacum laevigatum</i>
Hybrid Cinquefoil	<i>Potentilla pulcherrima x hippiana</i>	Dandelion	<i>Taraxacum officinale</i>
Cinquefoil	<i>Potentilla rivalis</i>	Purple Meadow Rue	<i>Thalictrum dasycarpum</i>
Selfheal	<i>Prunella vulgaris</i>	Greenthread	<i>Thelesperma megapotanicum</i>
Wild Alfalfa	<i>Psoralea tenuiflora</i>	Golden Banner	<i>Thermopsis rhombifolia</i> var. <i>divaricarpa</i>
Purple Ground Cherry	<i>Quincula lobata</i>	Field Penny Cress	<i>Thlaspi arvense</i>
Macoun's Buttercup	<i>Ranunculus macounii</i>	Easter Daisy	<i>Townsendia grandiflora</i>
Cursed Crowfoot	<i>Ranunculus scleratus</i>	Easter Daisy	<i>Townsendia hookeri</i>
Hairy Leaf Buttercup	<i>Ranunculus trichophyllus</i>	Spiderwort	<i>Tradescantia occidentalis</i>
Prairie Coneflower	<i>Ratibida columnifera</i>	Noseburn	<i>Tragia ramosa</i>
Bog Yellow Cress	<i>Rorippa palustris</i>	Goat's Beard	<i>Tragopogon dubius</i>
Goldenglow	<i>Rudbeckia ampla</i>	Salsify	<i>Tragopogon porrifolius</i>
Sheep Sorrel	<i>Rumex acetosella</i>	Alsike Clover	<i>Trifolium hybridum</i>
Curly Dock	<i>Rumex crispus</i>	Red Clover	<i>Trifolium pratense</i>
Golden Dock	<i>Rumex maritimus</i>	White Clover	<i>Trifolium repens</i>
Bitter Dock	<i>Rumex obtusifolius</i>	Venus' Looking Glass	<i>Triodanis leptocarpa</i>
Willow Dock	<i>Rumex salicifolius.</i>	Venus Looking Glass	<i>Triodanis perfoliata</i>
Common Arrowhead	<i>Sagittaria latifolia</i>	Stinging Nettle	<i>Urtica dioica</i>
Russian-Thistle	<i>Salsola iberica</i>	Cow Cockle	<i>Vaccaria pyramidata</i>
Lance-leaved Sage	<i>Salvia reflexa</i>	Moth Mullein *	<i>Verbascum blattaria</i>
Bouncing Bet	<i>Saponaria officinalis</i>	Common Mullein *	<i>Verbascum thapsus</i>
Diamondleaf Saxifrage	<i>Saxifraga rhomoides</i>	Prostrate Vervain	<i>Verbena bracteata</i>
False Salsify	<i>Scorzonera laciniata</i>	Blue Vervain	<i>Verbena hastata</i>
Figwort	<i>Scrophularia lanceolata</i>	Golden Crownbeard	<i>Verbesina encelioides</i>
Britton's Skullcap	<i>Scutellaria brittonii</i>	Brooklime Speedwell	<i>Veronica americana</i>
Stonecrop	<i>Sedum lanceolatum</i>	Water Speedwell	<i>Veronica anagallis-aquatica</i>
Spikemoss	<i>Selaginella densa</i>	Catenate Ironweed	<i>Veronica catentata</i>
Groundsel	<i>Senecio fendleri</i>	Purslane Speedwell	<i>Veronica peregrina</i>
Groundsel	<i>Senecio integerrimus</i>	American Vetch	<i>Vicia americana</i>
Prairie Ragwort	<i>Senecio plattensis</i>	Yellow Prairie Violet	<i>Viola nuttallii</i>
Groundsel	<i>Senecio spartioides</i>	Rydberg's Violet	<i>Viola rydbergii</i>
Groundsel	<i>Senecio tridenticulatus</i>	Colorado Violet	<i>Viola scopulorum</i>
White Checkermallow	<i>Sidalcea candida</i>	Northern Bog Violet	<i>Viola sororia</i>
New Mexico Checkmallow	<i>Sidalcea neomexicana</i>	Cocklebur	<i>Xanthium strumarium</i>
Sleepy Catchfly	<i>Silene antirrhina</i>	Death Camass	<i>Zigadenus venenosus</i>
Campion	<i>Silene drummondii</i>		
White Champion	<i>Silene pratensis</i>	SHRUBS	
Tumbling Mustard	<i>Sisymbrium altissimum</i>	Saskatoon Service-berry	<i>Amelanchier alnifolia</i>
Spikenard	<i>Smilacina stellata (L.)</i>	Dwarf Wild Indigo	<i>Amorpha nana</i>
Carrion Flower	<i>Smilax herbacea</i>	Western Sagewort	<i>Artemisia campestris</i>
Buffalo Bur	<i>Solanum rostratum</i>	Silky Wormwood	<i>Artemisia dracuncululus</i>
Cut-leaved Nightshade	<i>Solanum triflorum</i>	Silver Sage	<i>Artemisia frigida</i>
Canada Goldenrod	<i>Solidago canadensis</i>	White Sage	<i>Artemisia ludoviciana</i>
Late Goldenrod	<i>Solidago gigantea</i>	Four-winged Saltbush	<i>Atriplex canescens</i>
Prairie Goldenrod	<i>Solidago missouriensis</i>	Oregon Grape	<i>Berberis repens</i>
Soft Goldenrod	<i>Solidago mollis</i>	Buckbrush	<i>Ceanothus fendleri</i>

New Jersey Tea	<i>Ceanothus herbaceus</i>
Greenplume	
Rabbitbrush	<i>Chrysothamnus nauseosus</i>
Rubber Rabbitbrush	<i>Chrysothamnus nauseosus</i>
Hawthorne	<i>Crataegus erythropoda</i>
Hawthorn	<i>Crataegus succulenta</i>
Snakeweed	<i>Gutierrezia sarothrae</i>
Common Juniper	<i>Juniperus communis</i>
Mountain Ninebark	<i>Physocarpus monogynus</i>
Ninebark	<i>Physocarpus opulifolius</i>
Wild Plum	<i>Prunus americana</i>
Sand Cherry	<i>Prunus pumila</i>
Chokecherry	<i>Prunus virginiana</i>
Apple	<i>Pyrus malus</i>
Fragrant Sumac	<i>Rhus aromatica</i>
Golden Currant	<i>Ribes aureum</i>
Western Red Currant	<i>Ribes cereum</i>
Common Gooseberry	<i>Ribes inerme</i>
Prickly Wild Rose	<i>Rosa acicularis</i>
Prairie Wild Rose	<i>Rosa arkansana</i>
Western Wild Rose	<i>Rosa woodsii</i>
Boulder Raspberry	<i>Rubus deliciosus</i>
Raspberry	<i>Rubus idaeus</i>
Coyote Willow	<i>Salix exigua</i>
Sandbar Willow	<i>Salix exigua</i>
Bluestem willow	<i>Salix irrorata</i>
Yellow Willow	<i>Salix lutea</i>
Burnet	<i>Sanguisorba minor</i>
Mountain Ash	<i>Sorbus scopulina</i>
Western Snowberry	<i>Symphoricarpos occidentalis</i>
Snowberry	<i>Symphoricarpos oreophilus</i>
Salt Cedar *	<i>Tamarix ramosissima</i>
Highbush Cranberry	<i>Viburnum opulus</i>
Yucca	<i>Yucca glauca</i>

OTHERS

The following types plants have also been identified at Rocky Flats:

- 15 mosses
- 24 lichens

TREES

Mountain Maple	<i>Acer glabrum</i>
Box-elder	<i>Acer negundo</i>
Norway Maple	<i>Acer platanoides</i>
Water Birch	<i>Betula occidentalis</i>
Russian Olive *	<i>Elaeagnus angustifolia</i>
Green Ash	<i>Fraxinus pennsylvanica</i>
Rocky Mountain	
Juniper	<i>Juniperus scopulorum</i>
Blue Spruce	<i>Picea pungens</i>
Ponderosa Pine	<i>Pinus ponderosa</i>
Silver Poplar	<i>Populus alba</i>
Narrow-leaved	
Cottonwood	<i>Populus angustifolia</i>
Plains Cottonwood	<i>Populus deltoides</i>
Lanceleaf Cottonwood	<i>Populus x acuminata</i>
Douglas-Fir	<i>Pseudotsuga menziesii</i>
Black Locust	<i>Robinia pseudo-acacia</i>
Peach-leaf Willow	<i>Salix amygdaloides</i>
Crack Willow	<i>Salix fragilis</i>
Siberian Elm	<i>Ulmus pumila</i>

VINES

Hedge Bindweed	<i>Calystegia macouni</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hairy Clematis	<i>Clematis hirsutissima</i>
Western Clematis	<i>Clematis ligusticifolia</i>
Field Bindweed *	<i>Convolvulus arvensis</i>
Evolvulus	<i>Evolvulus nuttallianus</i>
Common Hops	<i>Humulus lupulus</i>
Poison Ivy	<i>Toxicodendron rydbergii</i>
Puncture Vine	<i>Tribulus terrestris</i>
River-bank Grape	<i>Vitis riparia</i>

appendix h

Record of Decision

**Rocky Flats
National Wildlife Refuge**

Record of Decision

Final Comprehensive Conservation Plan

February 2005

Fish and Wildlife Service
U.S. Department of the Interior
Rocky Flats National Wildlife Refuge
Rocky Mountain Arsenal – Building 121
Commerce City, CO 80022

Contents

1.1	Introduction.....	1
	Background	1
	Refuge Significance	2
	Purpose and Direction	2
	Vision	2
	Goals	3
	Planning Issues	3
	Future Planning.....	4
	Refuge Resources	4
1.2	Decision (Alternative B)	5
1.3	Other Alternatives Considered.....	5
	Alternative A: No Action	5
	Alternative C: Ecological Restoration	7
	Alternative D: Public Use.....	7
1.4	Public Involvement.....	8
	Project Scoping	8
	Alternative Workshops	9
	Comments on the Draft EIS	9
	Controversial Issues.....	9
	Responses to Comments Received on the Final CCP/EIS	10
1.5	Environmentally Preferable Alternative.....	11
1.6	Measures to Minimize Environmental Harm.....	12
1.7	Finding and Basis for Decision.....	13

Introduction

This Record of Decision (ROD) for the Final Comprehensive Conservation Plan (CCP) for the Rocky Flats National Wildlife Refuge provides the basis for a decision by the U.S. Fish and Wildlife Service (Service) on the proposed management of the future Rocky Flats National Wildlife Refuge (Refuge). The CCP has been prepared along with an Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA), and Service planning policies. The Service proposes to adopt and implement a CCP that provides Refuge management direction for the first 15 years following the establishment of the Refuge. The CCP addresses the issues identified during the public process, and is consistent with Service policies, the Rocky Flats National Wildlife Refuge Act of 2001 (Refuge Act), and sound wildlife and habitat management principles. Significant issues addressed in the Final CCP/EIS include: vegetation management, wildlife management, public use, cultural resources, property, infrastructure, and Refuge operations.

Background

The Rocky Flats site is located at the intersection of Jefferson, Boulder and Broomfield counties, along the Front Range of Colorado. The Rocky Flats site is a 6,240-acre former nuclear defense facility operated by the U.S. Department of Energy (DOE). All weapons manufacturing was performed in a 600-acre area in the middle of the site known as the Industrial Area. The Rocky Flats site is currently managed by the DOE according to existing management plans and policies. A 1,800-acre area in the northern half of the site is designated as the Rock Creek Reserve, and is managed in accordance with the 2001 Rock Creek Reserve Integrated Natural Resources Management Plan.

In 1992, the mission of the Rocky Flats site changed from weapons production to environmental cleanup and closure. The DOE is completing the cleanup in accordance with the Rocky Flats Cleanup Agreement under oversight by the U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE).

Under the Refuge Act, most of the 6,240-acre Rocky Flats site will become the Refuge following certification from the EPA that cleanup and closure have been completed. An area consisting of about 1,500 acres in the center of the site will likely be retained by DOE for long-term cleanup and monitoring. When portions of the site become a Refuge, the Service will assume management responsibility for those areas. Five sequential steps must be completed before Rocky Flats becomes a Refuge. These steps are:

1. Service completes final CCP/EIS and issues a Record of Decision
2. DOE completes site cleanup except for operations and management of the remedy
3. EPA certifies completion of the cleanup
4. DOE transfers land to Department of the Interior
5. Department of the Interior establishes the Refuge and Service begins management and implementation of the CCP

The Refuge Act requires that the DOE retain jurisdiction, authority and control over portions of the Rocky Flats site necessary for cleanup response actions. DOE anticipates that it will need to retain land in and around the current Industrial Area to maintain institutional controls and protect cleanup and monitoring systems. Such lands are referred to as the DOE retained area.

Management alternatives for the DOE-retained lands were not considered in the CCP because the lands will not be part of the Refuge and the Service will not have authority to decide how those lands should be managed. The Service is recommending a fence be built around the retained area to distinguish Refuge lands from lands under DOE jurisdiction. Such a fence will not adversely affect the movement of wildlife across the site, and will not be visually obtrusive. The DOE does not anticipate transferring any lands that would require additional safety requirements for either the Refuge worker or visitor.

Refuge Significance

In the Refuge Act, Congress found that the Rocky Flats site had several significant qualities:

- The majority of the Rocky Flats site has generally remained undisturbed since its acquisition by the federal government.
- The State of Colorado is experiencing increasing growth and development, especially in the metropolitan Denver Front Range area in the vicinity of the Rocky Flats site. That growth and development reduces the amount of open space and thereby diminishes for many metropolitan Denver communities the vistas of the striking Front Range mountain backdrop.
- The Rocky Flats site provides habitat for many wildlife species, including a number of threatened and endangered species, and is marked by the presence of rare xeric tallgrass prairie plant communities. Establishing the site as a unit of the National Wildlife Refuge System (NWRS) will promote the preservation and enhancement of those resources for present and future generations.

Purpose and Direction

As discussed previously, the Rocky Flats NWR was established by the Refuge Act, which identified four purposes of the Rocky Flats NWR:

- Restoring and preserving native ecosystems
- Providing habitat for and population management of native plants and migratory and resident wildlife
- Conserving threatened and endangered species (including species that are candidates for listing under the Endangered Species Act)
- Providing opportunities for compatible scientific research

The Refuge Act also provided some direction for managing the Refuge. The Service is to manage the Refuge to ensure that wildlife-dependent public uses and environmental education and interpretation are the priority public uses of the Refuge and to comply with all response actions.

Vision

At the beginning of the planning process, the Service developed a vision for the Refuge. A vision describes what will be different in the future as a result of the CCP and is the essence of what the Service is trying to accomplish at the Refuge. The vision is a future-oriented statement designed to be achieved through Refuge management by the end of the 15-year CCP planning horizon. The vision for the Refuge is:

Rocky Flats National Wildlife Refuge is a healthy expanse of grasslands, shrublands and wetlands, including rare xeric tallgrass prairie, where natural processes support a broad range of native wildlife. The Refuge provides striking mountain and prairie views and opportunities to appreciate the Refuge resources in an urbanized

area through compatible wildlife-dependent public uses and education. Working with others, the Refuge conserves the unique biotic communities and sustains wildlife populations at the interface of mountains and prairies on Colorado's Front Range.

Goals

The Service also developed six goals for Refuge management based on the Refuge Act and information developed during project planning. The goals are:

Goal 1. Wildlife and Habitat

Management. Conserve, restore and sustain biological diversity of the native flora and fauna of the mountain/prairie interface with particular consideration given to threatened and endangered species.

Goal 2. Public Use, Education and Interpretation.

Provide visitors and students high quality recreational, educational and interpretive opportunities and foster an understanding and appreciation of the Refuge's xeric tallgrass prairie, upland shrub and wetland habitats; native wildlife; the history of the site; and the NWRS.

Goal 3. Safety. Conduct operations and manage public access in accordance with the final Rocky Flats' cleanup decision documents to ensure the safety of the Refuge visitors, staff and neighbors.

Goal 4. Effective and Open

Communication. Conduct communication outreach efforts to raise public awareness about the Refuge programs, management decisions and the mission of the Service and the NWRS among visitors, students and nearby residents.

Goal 5. Working with Others. Foster beneficial partnerships with individuals, government agencies, non-governmental

organizations, and others to promote resource conservation, compatible wildlife-related research, public use, site history and infrastructure.

Goal 6. Refuge Operations. Based on available funds, provide facilities and staff to fulfill the Refuge vision and purpose.

Planning Issues

Several significant issues were identified following the analysis of all comments collected through various public scoping activities. These issues, as well as the many other substantive issues identified during scoping, were considered during the formulation of alternatives for future Refuge management. The significant issues are:

Vegetation Management: Native plant community preservation and restoration, fire management and weed control.

Wildlife Management: Wildlife species protection and management, including strategies to address species reintroduction, population management, migration corridors and coordination with regional wildlife managers.

Public Use: Policies and facility options to address several scenarios, from no access to multiple recreational and educational uses. This includes a range of facility development to accommodate these scenarios.

Cultural Resources: Preservation and recognition of elements related to site history, including Lindsay Ranch structures and Cold War heritage.

Property: Privately owned mineral rights, transportation right of way, and adjacent landowner relationships.

Infrastructure: Facilities, such as roads, fences, signs and water systems that

accommodate Refuge needs and user comfort/safety. Also includes surface water hydrology and maintenance of water quality.

Refuge Operations: Staffing requirements and management strategies to preserve significant resources and coordinate with surrounding communities and landowners.

Future Planning

The CCP will be adjusted to include new and improved information as it becomes available over the course of the CCP's 15-year duration. Implementation of the CCP will be monitored and reviewed regularly during inspections and programmatic evaluations. Budget requests and annual work plans will be tied directly to the CCP. Fifteen years after the Refuge has been established, the CCP will be formally revised, following the process used on this CCP. Any substantive changes to the CCP before the 15-year period will involve a public involvement process.

The CCP describes the desired future conditions of the Refuge and provides long-range guidance and management direction. Chapter 2 describes objectives and strategies that the Service will use to achieve the desired future conditions. During the 15-year planning period, the Service will prepare additional plans, called step-down management plans. A step-down management plan provides specific guidance for the Service to follow to achieve objectives or implement management strategies related to specific management topics such as habitat, fire and public use. Step-down plans will be developed as the need arises. The Service anticipates the following plans will be needed at the Refuge:

- Vegetation and Wildlife Management Plan
- Integrated Pest Management Plan
- Fire Management Plan

- Health and Safety Plan
- Historic Preservation Plan
- Visitor Services Plan - an umbrella document that will include interpretation, environmental education, hunting management and research protocols.

Refuge Resources

The Rocky Flats site is located at the interface of the Great Plains and Rocky Mountains, where it supports a diverse mosaic of vegetation communities. Many areas of the Rocky Flats site have remained relatively undisturbed for the past 30 to 50 years, allowing them to retain diverse natural habitat and associated wildlife. Some of the significant vegetation communities include the rare xeric tallgrass grassland and the tall upland shrubland communities. The xeric tallgrass grassland community covers over 1,500 acres on the Rocky Flats pediment tops, and is believed to be the largest example of this community remaining in Colorado and perhaps North America. The tall upland shrubland community is primarily found near seeps on north-facing slopes in the Rock Creek drainage. While this community covers less than 1 percent of the total area at Rocky Flats, it contains 55 percent of the plant species on the site.

Wildlife communities are supported by a regional network of protected open space that surrounds Rocky Flats on three sides and buffers wildlife habitat from the surrounding urban development. Preble's meadow jumping mouse, a federally listed threatened species, occurs in every major drainage at Rocky Flats, as well as in wetlands and shrubland communities adjacent to the Rock Creek and Woman Creek drainages. A resident herd of about 160 mule deer inhabit the site and elk are occasionally present.

Cultural resource surveys identified and recorded 45 cultural sites or isolated artifacts at Rocky Flats. None of the identified cultural resources are recommended as eligible for listing in the National Register of Historic Places. The Lindsay Ranch within the Rock Creek drainage provides opportunities to interpret the early history of settlement and ranching on the prairie.

Decision (Alternative B)

The Service selected Alternative B – *Wildlife, Habitat, and Public Use* as described in the Final CCP/EIS. The Service identified Alternative B as the Preferred Alternative in the Final CCP/EIS. The Service believes that Alternative B best satisfies the missions of the Service and the National Wildlife Refuge System, the direction of the Refuge Act, and the long-term needs of the habitats and wildlife at Rocky Flats. Alternative B represents a balance between wildlife and habitat management needs, compatible wildlife-dependent public uses, and budgetary constraints, and will guide Refuge management for the first 15 years after Refuge establishment.

Habitat management efforts will include the use of a variety of tools, including prescribed fire, grazing, and mowing to stimulate and maintain native grassland communities. As part of an integrated pest management plan, these tools will be used along with herbicides, biological controls, and other mechanical controls to reduce the density and spread of noxious weed species. The Service will remove and revegetate 28 miles of unused road, and 13 stream crossings. These efforts will improve habitat conditions for a variety of wildlife species, including the wetland and riparian habitat areas that are important to the Preble's meadow jumping mouse.

The Service will work with the Colorado Division of Wildlife (CDOW) to manage wildlife species. Deer and elk populations on the Refuge will be managed through public hunting, culling, and other means. Prairie dog populations will be allowed to expand up to 750 acres in areas outside of recognized Preble's habitat and the xeric tallgrass community. In partnership with the CDOW, the Service will evaluate the suitability for reintroducing native extirpated species, such as the sharp-tailed grouse, to the Refuge.

Public use programs will include environmental education programs for high school and college students, a limited hunting program (two weekends per year) for youth and the disabled, and interpretive programs. Visitor use facilities will include 12.8 miles of multi-use trail, 3.8 miles of hiking-only trail, a visitor contact station, interpretive overlooks, viewing blinds, and associated access and parking facilities. The Service will work closely with surrounding jurisdictions to coordinate natural resource management, public use, and the regional protection of wildlife movement corridors.

Other Alternatives Considered

The Final CCP/EIS evaluated three other alternatives for the management of the Refuge. These alternatives are summarized below, along with an explanation of why the alternative was not selected.

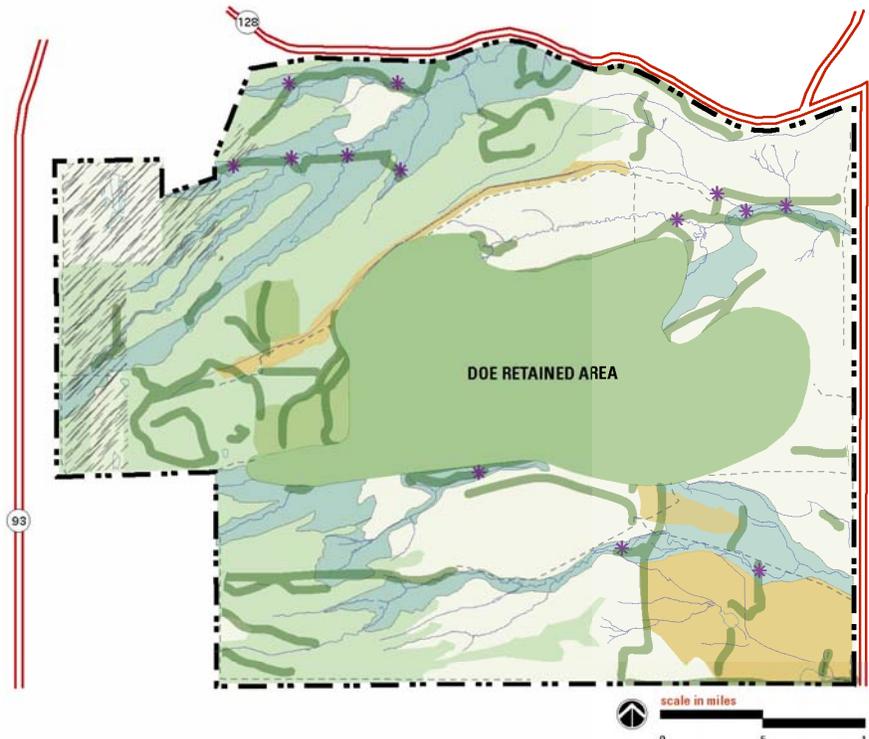
Alternative A: No Action

In the No Action Alternative, the Service would not develop any public use facilities and would not implement any new management, restoration, or education programs at Rocky Flats. In this alternative, the Service would continue to manage the 1,800-acre Rock Creek Reserve in accordance with the 2001 *Rock Creek Reserve Integrated Natural Resources Management Plan*. Management activities within the Rock Creek Reserve would



U.S. Fish & Wildlife Service

CCP / "Wildlife, Habitat & Public Use" Rocky Flats National Wildlife Refuge



Restoration Map

Resource Management Zones

- Xeric Tallgrass Prairie
- Riparian Corridor and Wetlands
- Mixed Prairie Grasslands

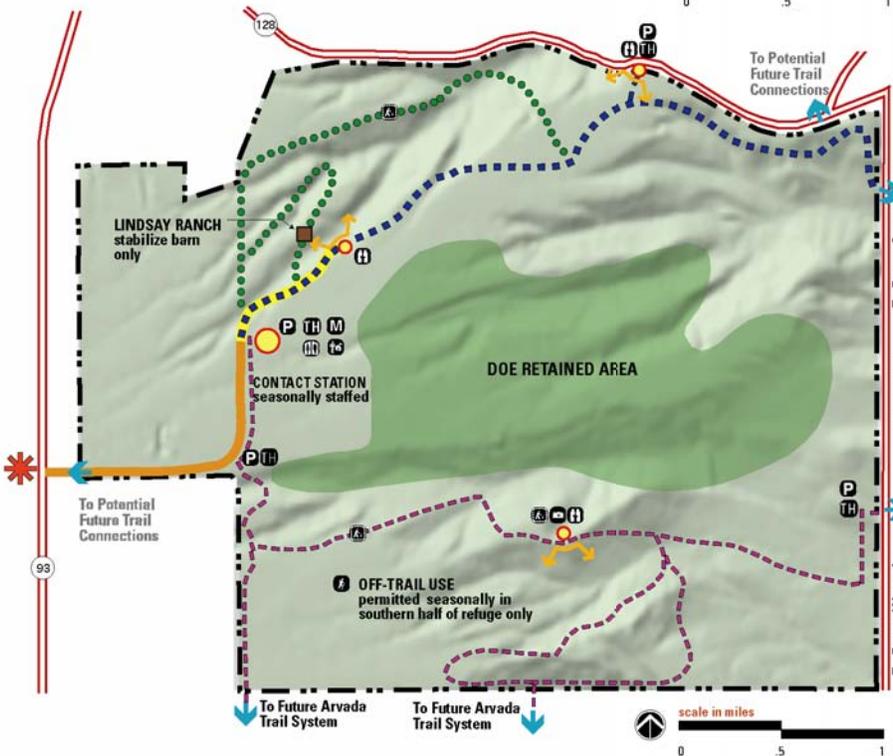
Targeted Restoration Areas

- Removed & Revegetated Road*
- ✱ Restored Stream Crossing
- Restored to Xeric Tallgrass
- Disturbed Area

Other Areas

- DOE Retained Area
- ▨ Permitted Mining Use
- Unpaved Maintenance Road (retained for administrative, easement & fire access)
- Rocky Flats Site Boundary

*Only primary road corridors are mapped; additional removal and revegetation may occur on secondary roads. Vegetation may cover portions of roads before USFWS begins active restoration.



Visitor Use Map

Public Uses

- Multiple Use Trail (hiking & biking)
- Multiple Use Trail (equestrian, hiking & biking)
- Pedestrian Trail
- ADA Accessible Trail
- Ⓜ Off Trail Use (seasonally, in southern half of site only)
- Service Refuge Lands
- Area Retained by DOE

Public Use Facilities

- Ⓐ Interpretation & Environmental Education Facility
- Ⓜ Photography Facility
- Ⓜ Observation Facility
- ➔ Regional Trail Connection
- Ⓜ Visitor Contact Station
- Developed Area
- ➔ Overlook

Other Facilities

- ✱ Refuge Entrance
- Ⓜ Maintenance
- Gravel Road
- Ⓜ Trailhead
- Ⓜ Parking *
- Ⓜ Restrooms

*Main parking area by Rock Creek/Lindsay Ranch trailhead will accommodate horse trailers.



include ongoing resource inventories and monitoring, habitat restoration, weed control and road removal and revegetation. Public use opportunities would be limited to guided tours.

Alternative A was not selected for implementation because it would allow only a limited amount of habitat restoration and could result in long-term impacts to Refuge resources due to erosion, expanded noxious weed infestations, and secondary impacts to wildlife habitat. The very limited public use opportunities offered in Alternative A are not consistent with the Refuge Act and the National Wildlife Refuge System Improvement Act of 1997, which direct the Service to provide wildlife-dependent recreation opportunities whenever those uses are found to be compatible with the purposes of the refuge and the mission of the Refuge System.

Alternative C: Ecological Restoration

Alternative C emphasizes Refuge-wide conservation and restoration of large areas of wildlife habitat. Restoration and management activities would strive to replicate pre-settlement conditions. Restoration efforts would focus on disturbed areas such as road corridors, stream crossings, cultivated fields and developed areas.

Limited public use and minimal facility development would occur in this alternative. Any facilities on the Refuge would be built for specific resource protection and management purposes. A single, 3,700-foot long trail would provide access to the Rock Creek drainage, but access would be limited to guided tours only. Environmental education programs would be limited to local distribution of educational materials about the Refuge and its ecological resources.

In Alternative C, the Service would facilitate increased opportunities for applied

research relating to long-term habitat changes and species of special concern. Partnerships would be expanded with governmental agencies, educational institutions and others to assist in wildlife and habitat protection, resource stewardship and the preservation of contiguous lands.

Alternative C was not selected for implementation because it does not provide the level of compatible wildlife-dependent public use opportunities that is desired by many members of the public and some nearby county and city governments. In addition, the estimated expense of additional resource management and monitoring activities is cost prohibitive.

Alternative D: Public Use

In Alternative D, the Service would emphasize wildlife-dependent public uses. Wildlife and habitat management would focus on the restoration of select plant communities and ongoing conservation and management of existing native plant and wildlife species. Certain roads and other disturbed areas not used for trails or public use facilities would be restored with native vegetation.

A broad range of public use opportunities would be provided, including wildlife observation and photography, interpretation, environmental education and a limited hunting program. Access through the Refuge would be provided by a 21-mile trail system that would accommodate hiking, bicycling and equestrian use. Most of the trails would be constructed along existing roads. A visitor center would be constructed at the Refuge. Environmental education efforts would include on- and off-site programs for kindergarten through college age students.

Research opportunities would focus on the integration of public use into the Refuge environment and interactions between

wildlife and visitors. Partnerships would be sought with various public agencies to help sustain Refuge goals and preserve contiguous lands. The Service also would work with local communities and tourism organizations to promote wildlife-dependent public uses on the Refuge.

Alternative D was not selected for implementation because the Service believes that the cost and extent of public use programs and facilities would be unnecessarily large, would preclude some habitat restoration and monitoring efforts, and would result in more extensive environmental impacts.

Public Involvement

Project Scoping

The scoping process began with informal public agency consultations in February 2002. The formal scoping period for the general public began on August 23, 2002, with the publication of a Notice of Intent in the Federal Register (67 FR 54667). The scoping period ended on October 31, 2002. The Notice of Intent notified the public of the Service's intent to begin the CCP/EIS process, set the dates for public scoping meetings, and solicited public comments. The public scoping process included four public scoping meetings held in September 2002 in Broomfield, Arvada, Westminster, and Boulder. Other scoping materials included the distribution of the Planning Update newsletter, a press release sent to 23 local and national media organizations, advertisements in seven newspapers, flyers posted in public buildings, and the posting of project information on the project website (<http://rockyflats.fws.gov>).

On August 19, 2002, the Service hosted a meeting for representatives from various state and federal agencies interested in the future management of the Rocky Flats site. The following agencies were represented:

- Agency for Toxic Substances and Disease Registry
- City of Westminster
- Colorado Attorney General's Office
- Colorado Department of Agriculture
- Colorado Department of Public Health and Environment
- Colorado Department of Transportation
- Colorado Division of Minerals and Geology
- Colorado Division of Wildlife
- Colorado Geological Society
- Colorado Historical Society
- Colorado State Parks
- Denver Regional Council of Governments
- Federal Aviation Administration
- Governor Owens' Office
- Rocky Flats Coalition of Local Governments
- State Land Board
- Senator Allard's Office
- U.S. Army Corps of Engineers
- U.S. Department of Energy
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- Urban Drainage and Flood Control District
- Xcel Energy

Six focus group meetings were held on October 28, 29, and 30, 2002. The purpose of the focus groups was to convene a forum to better explore key issues, as well as potential management alternatives and their potential implications. Participants were invited because of their knowledge of a particular subject. Focus groups addressed the following topics: recreation, environmental education, public perception/public information, managing a

NWR in the context of remediation and contamination, trails, vegetation management, and wildlife management.

The Service also contacted representatives from the Arapaho Tribe, Cheyenne and Arapaho Tribes of Oklahoma, Northern Cheyenne Tribe, the Ute Indian Tribe Business Council, Southern Ute Tribe, and the Ute Mountain Ute Tribe to solicit their input for the scoping process.

Alternative Workshops

After the significant issues were identified during the scoping period, the Service developed alternatives for the management of the Refuge. In May 2003, the Service held public workshops in Broomfield, Arvada, Westminster, and Boulder to present four preliminary management alternatives. At each workshop, the participants were encouraged to provide comments on the alternatives, and were specifically asked what they liked or disliked about them.

Comments on the Draft EIS

A Notice of Availability for the Draft CCP/EIS was published in the Federal Register on February 19, 2004 (69 FR 7789). During the Draft CCP/EIS comment period that occurred from February 19, 2004 to April 25, 2004, the Service received over 5,000 comments, received through public hearing testimony, letters, and emails. Comments came from 251 individuals and 34 agencies or organizations. The Service also heard from 933 people through form letters and petitions. All substantive issues raised in the comments were addressed in the Final CCP/EIS. Public comments are available for review at the Front Range Community College Library, Rocky Flats Reading Room or at the Rocky Mountain Arsenal National Wildlife Refuge Visitor Center on weekends. Responses to comments are

included as an appendix to the Final CCP/EIS.

Controversial Issues

While the comments on the Draft CCP/EIS included a variety of topics, several particular controversial issues became apparent during the comment period. Controversial issues were centered on the following topics:

- Contamination and cleanup
- Public use
- Hunting

Contamination and Cleanup – Concerns about existing contamination levels at the site, DOE’s cleanup efforts, and the implications of these issues on all other aspects of future Refuge management overshadowed all other issues during the comment period. Particular issues of concern included whether any public use is safe and appropriate, how the Refuge will be demarcated from the DOE retained lands, and whether certain practices such as prescribed fire and hunting will be safe.

These issues are largely outside of the scope of the EIS. The CCP/EIS was written under the premise that the area to become the Refuge will be certified to be safe prior to the establishment of the Refuge and the implementation of the CCP. The EPA and CDPHE have indicated that all of the proposed Refuge activities will be safe for the Refuge worker and visitor. If post-cleanup conditions change this assumption, the cleanup will not be certified and the Refuge will not be established.

In the DEIS, the Service recommended that the demarcation of the DOE retained area be “seamless” with few obvious visual differences between the Refuge and the DOE retained area. The final configuration of the DOE retained area, as well as the nature of any fencing or structures demarcating its boundary within the Refuge will be decided by the DOE, EPA, and

CDPHE. The Service is not the final decision-maker in these matters. Based on public concerns about the demarcation of the DOE retained area, the FEIS was revised to elaborate that the Service believes that a four-strand barbed-wire agricultural fence with signs and permanent obelisks will effectively demarcate the interior property boundary, keep livestock out of the DOE lands, and clarify that the DOE lands are closed to public access. Such a fence will not adversely affect the movement of wildlife across the site, and will not be visually obtrusive.

Public Use – In addition to contamination concerns (discussed above), the primary issues related to public use are whether the environmental impacts of public use/trail facilities are acceptable. During the planning process, the Service planned trail configurations that avoid and minimize impacts to riparian habitat. Existing roads will be re-used to the greatest extent possible, and trails through riparian habitat areas will be subject to seasonal closures. The overall trail density will be less than many of the other open space areas in the region. Of the 16.5 miles of trails that are planned, only 2 percent of the trails will be within riparian habitat, and most of those are stream crossings that follow existing roads. Overall, the proposed public use facilities, including trails, will directly impact less than 1% of the Refuge area, and the anticipated impacts from the use of those facilities will not significantly detract from wildlife and habitat values. As documented by the Compatibility Determinations in Appendix B of the Final CCP/EIS, the Service found the proposed public uses and facilities to be compatible with the mission of the NWRS and the purposes of the Refuge.

Hunting – Some members of the public were opposed to the general concept of hunting on a National Wildlife Refuge, disagreed with public hunting as a

management tool, or had concerns about the safety of hunting at Rocky Flats. The National Wildlife Refuge System Improvement Act of 1997 established hunting as a priority public use if it is compatible with the Refuge purposes and is consistent with public safety. The Service believes that a limited, highly managed hunting program will be an appropriate and compatible form of wildlife dependent recreation on the Refuge, and will complement other tools for managing ungulate populations, if necessary. In order to protect the safety of Refuge visitors and the surrounding communities, the Refuge will be closed to other uses on hunting weekends, and will be limited to short-range weapons such as shotgun slugs and archery.

In addition, some members of the public were opposed to hunting on the Refuge because of concerns about the potential uptake of contaminants by wildlife, and the potential health risks that those animals, especially hunted deer, pose to the general public. Tissue samples of deer harvested at Rocky Flats in 2002 were analyzed for contaminants. Radionuclide levels are very low for method detection limits and are well below the risk-based level for consumption of Rocky Flats deer tissue.

Responses to Comments Received on the Final CCP/EIS

The Service received two comments on the Final CCP/EIS, regarding the trail alignment along the southern boundary of the Refuge, and indirect impacts due to development activities near the Refuge.

Trail Alignment – One commentor requested a more extensive trail along the southern boundary of the Refuge. The Service has decided to not make the requested changes to the Final CCP. However, at the time of implementation, the Service will work with adjacent landowners and jurisdictions to coordinate trail

connections between the Refuge and adjacent areas.

Indirect Impacts of Development – One commentor expressed that indirect impacts from proposed development, including management of DOE-retained lands, the potential urban development, and a potential transportation corridor near the Refuge, could have been addressed further. The Service believes that these issues are adequately discussed in the Final CCP/EIS, and will not make changes to the document.

With regard to the management of DOE-retained lands, the Final CCP/EIS notes that these activities have the potential to adversely affect vegetation communities on the Refuge. The Final CCP/EIS also explains that the Service will provide recommendations to DOE on revegetation and resource management, and that the Service does not have decision-making authority on these matters.

The Final CCP/EIS explains that urban development adjacent to the Refuge may adversely affect the Refuge through weed dispersal and impacts to wildlife habitat and wildlife corridors. As new developments are proposed, the Service will work with local jurisdictions during the land use and development planning process to minimize the impact of adjacent urban development on Refuge resources.

As required by the Refuge Act, the Final CCP/EIS addresses and makes recommendations on the land to be made available along Indiana Street for transportation improvements. The Service believes that some transportation improvements in the area surrounding Rocky Flats is a reasonably foreseeable activity, but the specific location of any particular transportation improvement is speculative and is not reasonably foreseeable. In order to meet the requirements of the Refuge Act without

speculating on any specific transportation improvement, the Final CCP/EIS includes a section that quantifies resource impacts within three theoretical right-of-way widths along Indiana Street, and outlines potential impacts and mitigation measures that could apply to any transportation improvement near the Refuge.

Environmentally Preferable Alternative

The environmentally preferable alternative is defined as the “alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Typically, this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves and enhances historic, cultural and natural resources” (*Forty Most Asked Questions Concerning Council of Environmental Quality’s National Environmental Policy Act Regulations*, 1981). According to this definition, Alternative C, *Ecological Restoration*, is the environmentally preferable alternative.

Alternative C would emphasize the conservation and restoration of large areas of wildlife habitat, striving to replicate ecological conditions that existed prior to modern use and disturbance of the site. The key components of Alternative C, relative to Alternative B, include more extensive monitoring of Preble’s habitat and deer populations, more aggressive weed management, and would include additional staffing with an emphasis on habitat conservation and restoration. Public access would be limited to guided tours, and the Lindsay Ranch structures would be removed to allow the restoration of the site to a pre-settlement condition. The most significant ecological benefits of Alternative C over Alternative B would be the lack of open public access and its potential impacts to wildlife and habitat, and the improved

focus of staffing on habitat restoration and monitoring.

While Alternative C would cause the least damage to the biological and physical environment, removal of the Lindsay Ranch structures would result in some loss of cultural resource values. All of the action alternatives (B, C, and D) would promote the national environmental policy as expressed in NEPA's Section 101, and would be preferable to no action. The main distinctions between the action alternatives would be the extent of environmental restoration and monitoring, and the level of public use that would be allowed and facilitated. Most of the habitat restoration and conservation elements of Alternative C are also found in Alternative B. In Alternative B, public access will be allowed and public use facilities will be constructed, but these facilities will have minimal impact on the biological and physical environment at Rocky Flats. Trails and facilities proposed for Alternative B were designed to avoid sensitive habitat areas, and most of trails will be converted from existing roads. (Many of these roads would remain in Alternative C to provide utility and maintenance access.) Trails within or adjacent to sensitive habitat areas are restricted to hiking only, and are subject to seasonal closures. Overall, less than 1 percent of the Refuge area will be directly impacted by visitor use facilities.

Measures to Minimize Environmental Harm

Throughout the planning process, the Service took into account all practicable measures to avoid or minimize environmental impacts that could result from the implementation of Alternative B. These measures include the following:

Public Use Facilities – Most (72 percent) of the trails will be constructed by narrowing the width of existing gravel or

dirt roads on the site. All of the trails in the Rock Creek drainage will be restricted to hiking only, and will be subject to seasonal closures. Most of the visitor and maintenance facilities will be located on previously disturbed sites, to the greatest extent possible.

Road Restoration – Over 50 miles of roads currently exist on the portions of Rocky Flats that will become the Refuge. In Alternative B, the Service will remove and revegetate about 28 miles of roads. Thirteen stream crossings will be removed and restored with native riparian vegetation. The remainder of the existing roads will be used for trails and/or access roads. Where necessary, stream crossings to be re-used will be upgraded to reduce potential impacts on sensitive wildlife species such as the Preble's meadow jumping mouse.

Habitat Management – Sensitive habitat areas including the xeric tallgrass prairie, tall upland shrubland, and riparian habitat that support the Preble's meadow jumping mouse will be monitored by Service staff every 2 to 3 years to document the effectiveness of weed control and habitat restoration efforts, and to assess the impacts of disturbance.

Weed Management – An integrated pest management plan will be developed and implemented to control the spread of noxious weeds on the Refuge. The CCP includes a full suite of weed management and restoration tools to ensure that the most effective and efficient methods can be used to control weeds and restore degraded habitat.

Deer and Elk Management – In cooperation with the CDOW, the Service will establish population targets and use public hunting, culling, or other means to achieve those targets. Population management will reduce the potential for

impacts to sensitive habitat areas from overbrowsing or overgrazing and assist in ensuring the health and well being of ungulate populations on the Refuge.

Species Reintroduction – The Service will work with the CDOW to evaluate the suitability of reintroducing the extirpated sharp-tailed grouse to the Refuge, and will continue to monitor native fish that have recently been introduced to Rock Creek.

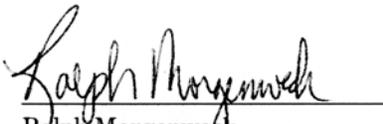
Conservation – The Service will work with other nearby jurisdictions and natural resource management agencies to coordinate resource management activities and to protect wildlife movement corridors surrounding the Refuge.

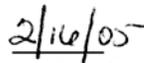
Finding and Basis for Decision

The Service has considered the environmental and relevant concerns presented by agencies, organizations and individuals on the proposed action to develop and implement a Comprehensive Conservation Plan for the Rocky Flats National Wildlife Refuge. Alternative B was selected for implementation because it achieves a reasonable balance between

wildlife and habitat conservation and compatible wildlife-dependent public use. The Service believes that Alternative B is most consistent with the intent of the Refuge Act, the National Wildlife Refuge System Improvement Act of 1977, and Service planning policies, and is the best way to achieve the vision and goals for the Refuge. While Alternative C provides a higher level of habitat restoration and monitoring and Alternative D provides more extensive public use facilities and programs, Alternative B best balances habitat protection and public use while limiting implementation costs.

All public and agency comments received during the environmental process were reviewed. Most of the issues and comments raised by the public and other stakeholders have been addressed in the Final EIS. Issues related to cleanup and contamination, will be addressed by other agencies prior to Refuge establishment and CCP implementation. Comments and responses on the Final CCP/EIS are presented in Appendix H of the Final CCP/EIS. Based on the above information, the Service has selected Alternative B for implementation.


 Ralph Morgenweck
 Regional Director, Region 6
 U.S. Fish and Wildlife Service
 Lakewood, Colorado


 Date

For further information contact the Refuge Manager, Rocky Flats National Wildlife Refuge, Building 121, Rocky Mountain Arsenal National Wildlife Refuge, Commerce City, CO 80022. Copies of the Final CCP/EIS and this ROD may be obtained from the above address or through the refuge website at <http://rockyflats.fws.gov>.

appendix i

List of Preparers

U.S. FISH AND WILDLIFE SERVICE

<i>Name</i>	<i>Responsibilities</i>	<i>Education</i>	<i>Experience</i>
Dean Rundle	Refuge Manager	B.S. Fisheries and Wildlife M.S. Fisheries and Wildlife	29 years
Laurie Shannon	Team Leader, RF CCP Plan	B.S. Recreation Resources Mgmt.	27 years
Michael Spratt	Chief of Refuge Planning Region 6	B.S. Forestry M.S. Landscape Architecture	23 years
Mark Sattelberg	Contaminants Biologist RF	B.A. Chemistry and Biology M.S. Biology	15 years
Andrew Todd	Water Quality Specialist	B.A. Biology M.S. Civil Engineering/Water Res.	6 years
Amy Thornburg	Refuge Operations Specialist	B.S. Wildlife Biology	9 years
Sherry James	Supervisory Park Ranger Visitor Services, RMA		14 years
Bruce Hastings	Supervisor, Wildlife/Habitat RMA	B.S. Chemistry and Psychology M.S. Wildlife Science Ph.D. Ecology	18 years
Lorenz Sollmann	Integrated Pest Management Fire Management, RMA	B.S. Wildlife Biology	9 years
Robin Romero	Biocontrol of weeds, RF Planning Assistance	B.S. Animal Science M.S. Biology/Entomology	10 years
Beth Dickerson	Planning Assistance Preble's Consultation	M.S. Biology	4 years

SHAPINS ASSOCIATES, INC.

<i>Name</i>	<i>Responsibilities</i>	<i>Education</i>	<i>Experience</i>
Ann Moss	Project Manager, CCP	B.A. Art and Art History Masters of Landscape Architecture	27 Years
Mimi Mather	Planner, CCP; Public Use	B.A. Sociology Masters of Landscape Architecture	5 Years
Brian Braa	Planner, CCP; Public Use	B.S. Accounting Masters of Landscape Architecture	5 Years

RESOLVE

<i>Name</i>	<i>Responsibilities</i>	<i>Education</i>	<i>Experience</i>
Mike Hughes	Facilitation	B.A. Political Science Masters of City Planning	20 Years
Jody Erikson	Facilitation	B.A. Human Communication	4 Years

ERO RESOURCES CORP.

<i>Name</i>	<i>Responsibilities</i>	<i>Education</i>	<i>Experience</i>
Richard Trenholme	Project Manager, EIS	B.S. Agronomy	25 years
Bill Mangle	Project Planning and Coordination	B.S. History/Political Science M.S. Natural Resource Policy/Planning	6 years
Ron Beane	Wildlife	B.S. Biology M.S. Wildlife Biology	28 years
Mark DeHaven	Vegetation, Soils, and Geology	B.A., Business M.S., Natural Resources	24 years
Barbara Galloway	Water Resources and Aquatic Life	B.A., Environmental Conservation and Biology M.S., Water Resources	20 years
Michael Simler	GIS	B.S., Biology	5 years
Martha Clark	Technical Editor	B.A., English	18 years

ADDITIONAL CONTRIBUTORS

The following individuals also contributed to the development of the CCP/EIS by sharing their knowledge in planning workshops or at other times during the planning process.

U.S. FISH AND WILDLIFE SERVICE, REGION 6 REGIONAL OFFICE

<i>Name</i>	
Rick Coleman	Chief of Refuges
Ron Cole	Former Region 6 Program Supervisor (CO, KS, NE)
Ron Shupe	Region 6 Program Supervisor (CO, KS, NE)
Larry Gamble	Chief, Environmental Contaminants
Mark Ely	Planning, GIS and Mapping Coordinator
Sheri Fetherman	Chief, Education and Visitor Services Division
Melvie Uhland	Education and Visitor Services, CO/KS/NE
Ken Kerr	Zone Fire Management Officer, CO/KS/NE

Harvey Wittmier Chief, Realty Division

David Redhorse External Affairs

U.S. FISH AND WILDLIFE SERVICE, REGION 6 ECOLOGICAL SERVICES

Name

Lee Carlson Former CO Ecological Services Field Office
Supervisor

U.S. FISH AND WILDLIFE SERVICE, COLORADO FISH AND WILDLIFE ASSISTANCE OFFICE

Name

Bruce Rosenlund Colorado Fish and Wildlife Management Assistance Office

U.S. FISH AND WILDLIFE SERVICE, PRIVATE LANDS

Name

Bill Noonan Private Lands Coordinator

U.S. FISH AND WILDLIFE SERVICE, WASHINGTON OFFICE

Name

Liz Bellatoni Planning Coordinator

U.S. FISH AND WILDLIFE SERVICE, ROCKY MOUNTAIN ARSENAL NWR STAFF

Name

Vic Elam Refuge Operations Specialist

Stephen Smith Civil Engineer

Tom Jackson Remedy Coordinator

Mindy Hetrick Wildlife Biologist

Eric Stone Wildlife Biologist

U.S. DEPARTMENT OF ENERGY, ROCKY FLATS FIELD OFFICE

Name

Cliff Franklin

John Rampe

KAISER-HILL/LABAT-ANDERSON

Name

Jody Nelson Plant Ecologist

COLORADO DIVISION OF WILDLIFE

Name

Mike Wedermyer District Wildlife Manager

Aaron Lindstrom Wildlife Biologist

index

INDEX

A

Access S4, S5, S7, S8, 7, 10, 20, 21, 37, 39, 47, 51, 53, 54, 56, 59, 61, 62, 68, 70, 71, 72, 74, 75, 80, 85, 86,87, 90, 91, 92, 93, 96, 100, 101, 102, 103, 129, 166

Accessible facilities 74, 87, 90, 125

Adaptive management 120, 125

Air quality 61-62, 77, 78, 82, 106, 114, 165

Aquatic species 45, 48

B

Bald eagle 4, 48, 107, 113

Biking 56, 59, 74, 127-128

Biological control 82

Birds 5, 36, 42, 45, 76, 85, 106, 108, 125, 127, 167

Blinds, viewing 72, 73, 74, 75, 76, 91, 108, 72, 107, 108

Buffer Zone 3, 63

C

Candidate species 41, 46, 48, 83, 113, 125-126

Chronic Wasting Disease 125

Cleanup vi, S3, S5, S7, 3, 4, 7, 10, 19, 20, 21, 22, 25, 27, 32, 55, 61,71, 72, 84, 92, 125, 129, 167

Colorado Division of Wildlife vi, S7, 19, 62, 63, 64, 76, 102, 130, 220

Colorado Natural Heritage Program vi, 33, 63

Communication S5, S8, 7, 16, 62, 63, 64, 70, 71, 72, 218

Compatibility 4-6, 125, 167

Conservation easement 125-126

Contamination 3, 8, 19, 20, 21, 22, 27, 47-48

Culling 68, 82, 100, 107, 111, 114

Cultural resources S6, 4, 19, 20, 49-50, 62, 70, 72, 73, 86, 87, 96, 97, 105, 127

Cumulative impacts 21, 64, 109

D

Deer S6, S7, S8, S9, 6, 36, 39, 41, 47, 48, 68, 73, 76, 82, 85, 88, 89, 100, 102, 106, 107, 108, 110, 111, 112, 113, 114, 125,130

Department of Energy vi, S3, S7, 3, 19, 62, 64, 109, 129, 219,

Ditches 29, 36, 45, 49, 86

DOE retained lands 11, 96

E

Easement 53-54, 125-126, 129

Elk S3, S6, S7, S8, S9, 41, 47, 68, 73, 76, 82, 88, 89, 100, 102, 106, 107, 108, 110, 111, 113, 114, 125,130

Endangered Species Act vi, 6, 48, 125-126, 165

Environmental education S4, S7, S8, 5, 7, 11, 19, 72, 73, 86, 87, 88, 89, 102, 126, 128, 130, 167

Environmental Justice 115, 166

Environmental Protection Agency vi, S3, 3, 19, 64, 109, 129

Equestrian 20, 56, 59, 74, 75, 90, 91, 95, 101, 127-128

Erosion 27, 106, 107, 108, 110, 126

F

Fencing S4, 49, 56, 77, 78, 80, 82, 83, 86, 96, 99, 112, 127

Fire S9, 6, 11, 27, 39-40, 45, 63, 69, 78, 79, 81, 82, 90, 94, 95, 96, 104, 105, 119, 120, 128, 130, 217-218

Fire, prescribed 21, 68, 77, 78, 79, 80, 81, 82, 93, 98, 99, 106, 107, 110, 112, 113

G

Geology 25-26, 48, 54, 62, 108, 110, 218

Global Positioning System vi, 82, 126

Goals S5, S7, 4, 5, 6, 7, 8, 15, 16, 18, 20, 68, 76, 77, 85, 87, 93-96, 113, 120, 121, 125, 127, 128, 129, 130

Grazing 45, 21, 55-56, 68, 76, 77, 78, 79, 81, 82, 83, 98, 99, 107, 107, 110, 111, 113, 114, 120, 127, 129

Ground water 27, 29-30, 32, 34

H

Hay meadow S9, 78, 80, 98, 110, 126

Herbicide 80, 82

Highway 128 39, 47, 51, 53, 55-56, 60, 75, 114

Highway 72 51, 53, 56, 59, 61,

Highway 93 7, 47, 51, 53-56, 59, 6171, 72, 114

Hiking 56, 59, 72, 89, 90, 102, 127-128

Hunting S7, S8, 5, 11, 21, 68, 71, 73, 82, 89, 100, 102, 107, 108, 111, 114, 120, 130, 167

I

Indiana Street 29, 41, 47, 51, 53-54, 61, 75, 79, 90, 114

Industrial Area S3, S7, 3, 8, 25, 29, 30, 32, 37, 41, 46, 51, 53, 54, 61, 63

Integrated Pest Management vi, S9, 11, 99, 107, 119, 126, 217

Interpretation S4, S5, S8, 5, 7, 11, 68, 70, 72, 73, 84, 86, 87, 91, 96, 97, 101, 102, 120, 130, 167

L

Lindsay Ponds 29, 46

Lindsay Ranch S6, S7, 20, 21, 49, 51, 60, 63, 70, 71, 74, 75, 86, 89, 90, 93, 96, 97, 101, 102, 105, 113

M

Mammals 5, 36, 39, 41, 47-48, 76, 106, 108

Management zones 32

Mineral rights 20, 53-54, 86

Mining S6, 21, 25, 47, 49, 53-56, 61, 126, 128

Mountain backdrop S4, 6, 60

Mountain plover 47

Mowing 77, 78, 80, 81, 98

N

National Environmental Policy Act vi, 127, 167

National Wildlife Refuge System Improvement Act 4-5, 11, 15, 125, 129-130, 167

National Wind Technology Center vi, 64, 79, 109

Native American tribes 19, 128

Noise 61, 114

Noxious weeds 33, 37-39, 68, 76, 77, 78, 80, 81, 82, 99, 127

O

Office space 92, 96

Off-trail use 74, 101, 108, 110, 111, 128

Open space vi, S4, S6, 6, 39, 45, 47, 53, 55, 56, 57, 59, 60, 62, 63, 64, 68, 71, 72, 84, 90, 91, 71, 104, 107, 108, 109, 113, 120

Overlook 68, 71, 74, 75, 87, 90, 102, 107, 110, 113, 114, 128

P

Parking S7, 72, 74, 75, 86, 90, 125

Partnerships S5, S7, S8, 7, 77, 94, 95, 96, 97, 98, 105, 120

Photography 5, 73, 108, 130, 167

Planning update 16, 18

Population targets S9, 82, 100, 111

Prairie dog, black-tailed 82, 83, 98, 100, 110, 111, 113, 114

Preble's meadow jumping mouse S6, S7, 4, 41, 48, 56, 64, 71, 76, 107, 108

Preferred Alternative 15, 128

Public involvement S6, 11, 15, 16, 17, 128

Public outreach 68, 70

Public use facilities S7, 72, 86, 91, 92, 96, 111, 114, 121

R

Record of Decision vi, S3, 3, 4, 16, 128

Refuge Act S3, S4, 4, 6, 7, 16, 17, 53, 54, 91, 167

Refuge operations vi, S3, S5, S8, 4, 7, 20, 217, 219

Refuge Recreation Act 4, 167

Refuge System Administration Act 4, 11, 167

Reintroduction S8, S9, 20, 45, 62, 68, 76, 78, 80, 83, 84, 98, 100, 107, 108, 111, 113, 121

Reptiles and amphibians 45

Research S4, S5, S6, S7, S8, 6, 7, 11, 55, 56, 62, 87, 88, 94,

95, 104, 108, 111, 112, 120, 125, 166

Response actions S7, 4, 7

Riparian S6, S9, 32, 33, 34, 36, 39, 42, 45, 46, 48, 56, 60, 68, 71, 74, 76, 78, 80, 81, 82, 85, 86, 100, 107, 108, 110, 111, 113, 120, 121, 129

Rock Creek S6, 25, 27, 29-30, 32, 34, 36-37, 39, 41, 46-48, 54, 56, 60, 63-64, 70, 71, 74, 75, 82, 84, 85, 86, 90, 100, 102, 108, 109

Rocky Flats Cleanup Agreement vi, S3, 3, 129

S

Safety S4, S5, S7, S8, 7, 11, 15, 20, 27, 68, 70, 78, 80, 84, 85, 87, 88, 89, 92, 93, 94, 97, 103, 105, 114, 120, 121, 129, 165, 166

Scoping S7, 7, 15, 16, 17, 18, 19, 20, 62, 70, 109 129

Seasonal closures 74, 129

Sharp-tailed grouse S9, 45, 47, 62-63, 68, 83, 84, 98, 100, 107, 111

Signage S4, 71, 72, 73, 75, 85, 86, 90, 91, 93, 96, 97, 101, 103, 105, 128

Significant issues 15, 20, 21, 129

Social trail 108, 111, 129

Soils 10, 25, 27-28, 33, 36-37, 42, 48, 83, 110, 121, 125, 218

Step-down management plan 5, 11, 119, 130

Stream crossing 129

T

Tall upland shrubland S6, 25, 32-34, 37, 42, 48, 82

Threatened species S6, 41, 48, 71, 76, 82, 130, 165

Tours, guided 72, 73, 75, 87, 92

Traffic 51, 53, 61-63, 114

Trail impacts S9

Trailheads S4, S7, 56, 71, 72, 73, 74, 75, 90, 91, 93, 102, 103, 108, 113, 121, 130

Trails S7, S9, 56, 58, 59, 60, 62, 64, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 86, 90, 91, 95, 96, 101, 102, 104, 108, 110, 111, 112, 113, 121, 125, 127, 128, 129

U

Utilities 25, 32, 51-54, 119

V

Vauxmont 55, 59

Vegetation communities S6, S9, 25, 32, 33, 48, 49, 107, 110, 111, 112, 121

Visitor center 22, 130

Visitor contact station S7, 75, 96, 101, 121, 130

Visitor use S7, S9, 4, 27, 72, 86, 91, 96, 106, 120

Visual resources 60-61, 107, 114

Volunteers 72, 73, 87, 94, 95, 96, 104, 121, 94

W

Walnut Creek 27, 29, 32, 39, 41, 45-47, 59-60, 79, 84

Water rights 21, 53, 55, 62

Weed management S8, S9, 34, 68, 76, 77, 78, 80, 81, 82, 90, 99, 106, 107, 110, 111, 112, 113, 121, 127

Wetland S5, 7, 33-34, 36, 42, 48, 56, 73, 76, 84, 85, 107, 110, 127, 165

Wildlife and Habitat Management S5, S8, 7, 76, 78, 99, 100, 112, 121

Wildlife-dependent public use S7, 5

Woman Creek S6, 27, 29-30, 32, 36-37, 39, 41, 46-49, 54-56, 73, 80, 81, 83, 84, 85, 98, 100, 110, 111, 112, 113, 120, 121

X

Xeric tallgrass S3, S4, S5, S6, S8, 6, 7, 32, 33, 37, 48, 71, 77, 80, 81, 83, 84, 85, 98, 100, 110, 111, 112, 113, 120, 121